KV-V1410A/V1410D/V1410E

RM-846

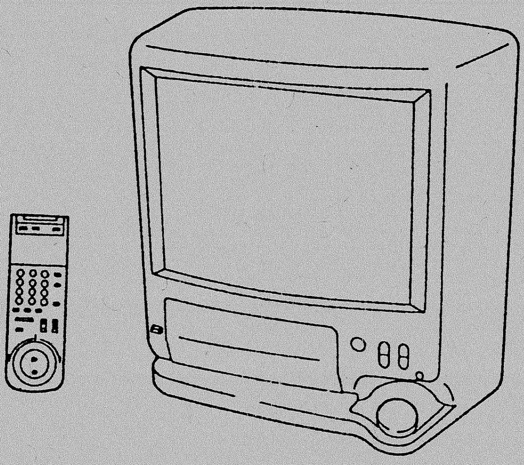
SERVICE MANUAL

ET Model

KV-V1410A
Chassis No. SCC-G53A-A

AEP Model

KV-V1410D
Chassis No. SCC-G31A-A
KV-V1410E
Chassis No. SCC-G31B-A



BC-2 CHASSIS

- Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENTS Ⅲ for MECHANICAL ADJUSTMENTS. (9-973-211-11)

MODELS OF THE SAME SERIES	
KV-V1410A/V1410D/V1410E	

SPECIFICATIONS

TV Section

Television system	B/G
Colour system	PAL/NTSC4.43
Channel coverage	See "Receivable channels and channel display" at the bottom.
Picture tube	Trinitron Approx. 37 cm (14 inches)
Aerial in	75-ohm aerial socket for VHF/UHF
Intermediate frequency	Video: 38.9MHz Audio: 33.4MHz

Video Section

Format	VHS standard
Video recording system	Rotary 2-head helical scanning system
Audio recording system	Monaural
Video signal	PAL
Tape speed	PAL: 23.39 mm/sec. NTSC (playback only): 33.35 mm/sec.
Maximum recording time	240 minutes with E-240

Inputs and Outputs

Inputs	LINE IN VIDEO: phono jack (1) 1 Vp-p, 75 ohms, unbalanced, sync negative LINE IN AUDIO: phono jack (1) Input level: 500 mVrms (100% modulation) EURO-AV: 21-pin
Output	EURO-AV: 21-pin
Headphones jack	Monaural minijack

— continued on next page —

MICROFILM

TRINITRON® COLOR VIDEO TV

SONY®

General

Clock	Quartz locked
Power back up	Approx. 1 hour or less
Power requirements	230 V AC, 50 Hz
Power consumption	KV-V1410A: 65W KV-V1410D/V1410E: 75W
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	–20°C to 60°C (–4°F to 140°F)
Dimensions	Approx. 391 x 409 x 443 mm (w/h/d) (15½ x 16⅛ x 17½ inches)
Mass	Approx. 15.5 kg (34 lb 3 oz)

Accessories supplied

Remote Commander (1)
R6 (size AA) batteries (2)

Note
Design and specifications are subject to change without notice.

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

Receivable Channels and Channel Display

	Channel coverage	Channel display
Western European countries	E-2 to E-12 E-21 to E-69	C02 to C12 C21 to C69
Italy	A, B, C, D, E, F, G, H	C13, C14, C15, C16, C17, C18, C19, C20
CATV	S-1 to S-41	S01 to S41
Belgian CATV	S-01 to S-05	S42 to S46

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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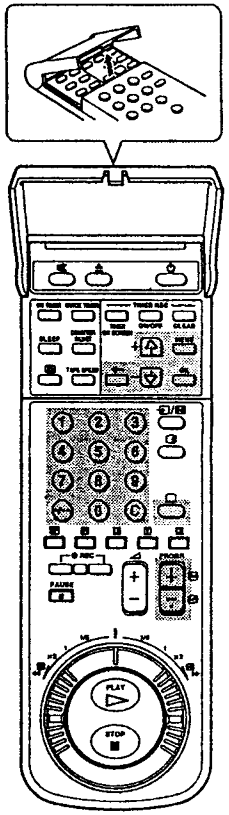
SECTION 1
GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remein as in the manual.

1-1. TUNING IN TO TV STATIONS



Note on the DEMO function
If you choose "DEMO" on the main menu and press OK, you can see a sequential demonstration on the menu functions on the screen. Press any button (e.g. MENU) to stop this function.

You should preset the channels (up to 60 channels) by choosing either the automatic or manual method.
The automatic method is easier if you want to preset all receivable channels at once. Use the manual method if you want to allocate programme numbers to the channels one by one.

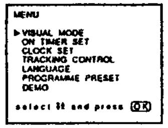
Before you begin

- Depress the ⏻ switch on the video TV to switch it on.
  If the ⏻ lamp on the video TV is lit in red, press ▢, PROGR +/– or a number button on the Remote Commander.
- Lift the flap on the Remote Commander and locate Menu operation buttons.

Selecting the Language on the Menu

You can select one of several languages for the menu and on-screen information. The initial setting is English.

1 Press MENU.
The main menu appears.

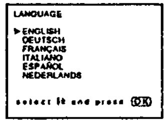


MENU

▶VISUAL MODE
ON TIMER SET
CLOCK SET
TRACKING CONTROL
LANGUAGE
PROGRAMME PRESET
DEMO

select ⇕ and press OK

2 Move the cursor (▶) to "LANGUAGE" with + ⇧ or – ⇩ and press OK.
The LANGUAGE menu appears.



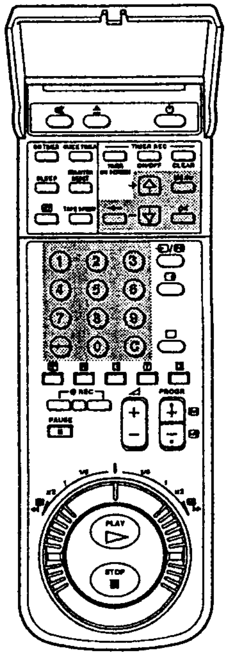
LANGUAGE

▶ENGLISH
DEUTSCH
FRANÇAIS
ITALIANO
ESPAÑOL
NEDERLANDS

select ⇕ and press OK

3 Select the language you want with + ⇧ or – ⇩ and press OK.

4 Press MENU to go back to the original screen.

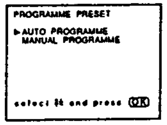


To stop automatic channel presetting
Press ⬅ on the Remote Commander.

Presetting Channels Automatically

1 Press MENU to display the main menu.

2 Move the cursor to "PROGRAMME PRESET" with + ⇧ or – ⇩ and press OK.
The PROGRAMME PRESET menu appears.

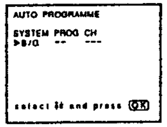


PROGRAMME PRESET

▶AUTO PROGRAMME
MANUAL PROGRAMME

select ⇕ and press OK

3 Move the cursor to "AUTO PROGRAMME" with + ⇧ or – ⇩ and press OK.
The AUTO PROGRAMME menu appears.



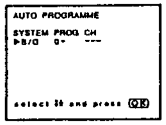
AUTO PROGRAMME

SYSTEM PROG CH
▶B/G -- ---

select ⇕ and press OK

4 Press OK.
The first element of the PROG position turns red.

5 Select the programme (number button) from which you want to start presetting.
Select the first element of the double-digit number with + ⇧ or – ⇩ or the number buttons (e.g. For "06", select "0") and press OK.
The second element turns red.



AUTO PROGRAMME

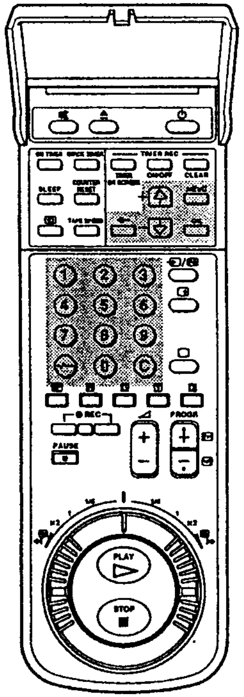
SYSTEM PROG CH
▶B/G 0- ---

select ⇕ and press OK

6 Select the second element of the double-digit number with + ⇧ or – ⇩ or the number buttons (e.g. For "06", select "6") and press OK.
The first element of the CH position turns red.

7 Select C (to preset a regular channel) or S (to preset a cable channel) with + ⇧ or – ⇩ or C (Press C once for "C" and twice for "S") and press OK.

8 Select the first and second elements of the double-digit number of the channel in the same way as in steps 5 and 6.
Presetting starts from the selected programme position.
The preset programme and channel numbers are displayed on the screen in sequence. When presetting is finished, the PROGRAMME PRESET menu reappears. All available channels are now stored on successive number buttons.



For programme positions beyond 6

The display scrolls by pressing – ⇩ repeatedly.

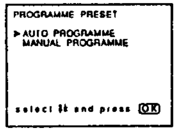
If you have made a mistake

Press ⇦ to go back to the previous position.

Presetting Channels Manually

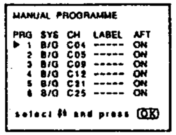
1 Press MENU to display the main menu.

2 Move the cursor (▶) to "PROGRAMME PRESET" with + ⇧ or – ⇩ and press OK.
The PROGRAMME PRESET menu appears.



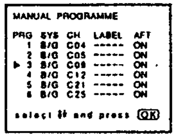
```
PROGRAMME PRESET

▶AUTO PROGRAMME
 MANUAL PROGRAMME



select ⇅ and press OK
```

3 Move the cursor to "MANUAL PROGRAMME" with + ⇧ or – ⇩ and press OK.
The MANUAL PROGRAMME menu appears.



```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL   AFT
▶ 1  B/G  C04  ------  ON
  2  B/G  C05  ------  ON
  3  B/G  C09  ------  ON
  4  B/G  C12  ------  ON
  5  B/G  C21  ------  ON
  6  B/G  C25  ------  ON

select ⇅ and press OK
```

4 Using + ⇧ or – ⇩ , move the cursor to the programme position (number button) to which you want to preset a channel, and press OK.



```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL   AFT
  1  B/G  C04  ------  ON
  2  B/G  C05  ------  ON
▶ 3  B/G  C09  ------  ON
  4  B/G  C12  ------  ON
  5  B/G  C21  ------  ON
  6  B/G  C25  ------  ON

select ⇅ and press OK
```

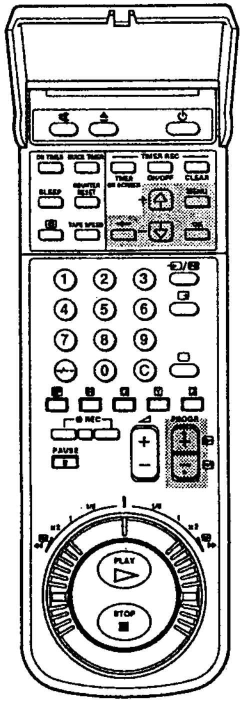
5 Press OK.
The CH position turns red.

6 Search for the channel with + ⇧ (up) or – ⇩ (down).
The channel number starts counting up or downwards. When a channel is found, it stops.
If you want to preset this channel, press OK. If not, press + ⇧ or – ⇩ to search for another channel.

You can also select the channel number directly with the number buttons. Press C (once for regular channels, twice for cable channels), number buttons (e.g. For 06, press 0 and 6), then OK.

7 Repeat steps 4 to 6 to preset other channels.

8 After you finish presetting, press MENU to go back to the original screen.



For programme positions beyond 6

The display scrolls by pressing – ⇩ repeatedly.

Skipping Programme Positions

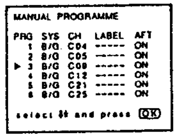
You can skip unused programme positions when selecting programme with PROGR +/– buttons. However, the skipped programmes may still be called up when you select them with the number buttons.

1 Press MENU to display the main menu.

2 Move the cursor (▶) to "PROGRAMME PRESET" with + ⇧ or – ⇩ and press OK.
The PROGRAMME PRESET menu appears.

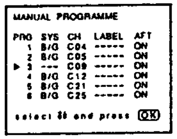
3 Move the cursor to "MANUAL PROGRAMME" with + ⇧ or – ⇩ and press OK.
The MANUAL PROGRAMME menu appears.

4 Using + ⇧ or – ⇩ , move the cursor to the programme position which you want to skip and press OK.
The "SYS" position turns red.



```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL   AFT
  1  B/G  C04  ------  ON
  2  B/G  C05  ------  ON
▶ 3  B/G  C09  ------  ON
  4  B/G  C12  ------  ON
  5  B/G  C21  ------  ON
  6  B/G  C25  ------  ON

select ⇅ and press OK
```

5 Press + ⇧ or – ⇩ until "---" appears in the "SYS" position and press OK.

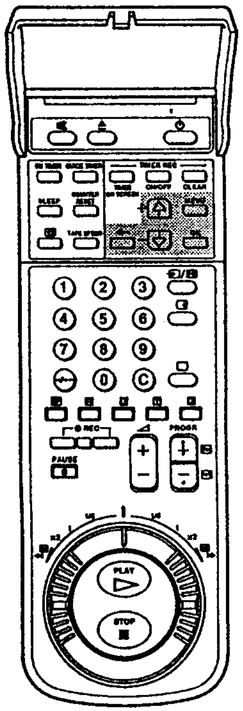


```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL   AFT
  1  B/G  C04  ------  ON
  2  B/G  C05  ------  ON
▶ 3  ---  C09  ------  ON
  4  B/G  C12  ------  ON
  5  B/G  C21  ------  ON
  6  B/G  C25  ------  ON

select ⇅ and press OK
```

When you select programmes using the PROGR +/– buttons, the programme position is skipped.

6 Repeat steps 4 and 5 to skip other programme positions.

7 Press MENU to go back to the original screen.



If you have made a mistake
Press ← to go back to the previous position.

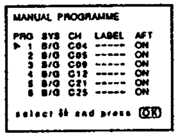
Captioning a TV Station Name

You can name a channel using up to five characters (letters or numbers) to be displayed on the TV screen (e.g. MTV). Using this function, you can easily identify which channel you are watching.

1 Press MENU to display the main menu.

2 Move the cursor (▶) to "PROGRAMME PRESET" with + ⇧ or – ⇩ and press OK. The PROGRAMME PRESET menu appears.

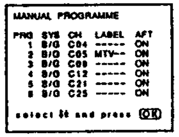
3 Move the cursor to "MANUAL PROGRAMME" with + ⇧ or – ⇩ and press OK. The MANUAL PROGRAMME menu appears.



```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL   AFT
▶ 1  B/G  C04  ------  ON
  2  B/G  C05  ------  ON
  3  B/G  C09  ------  ON
  4  B/G  C12  ------  ON
  5  B/G  C21  ------  ON
  6  B/G  C25  ------  ON

select ⇅ and press OK
```

4 Using + ⇧ or – ⇩ , move the cursor to the programme position you want to caption and press OK repeatedly until the first element of the "LABEL" position turns red.

5 Select a letter or number with + ⇧ or – ⇩ and press OK. The next element turns red. Select other characters in the same way. For the element you want to leave blank, select "-" and press OK.

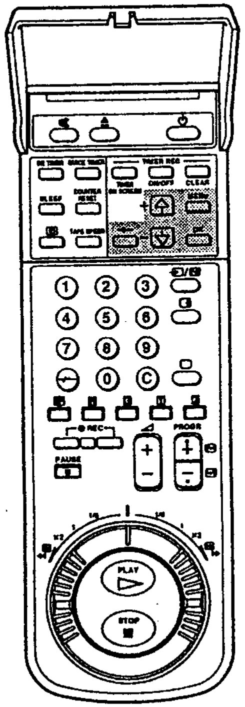


```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL   AFT
  1  B/G  C04  ------  ON
  2  B/G  C05  MTV---  ON
  3  B/G  C09  ------  ON
  4  B/G  C12  ------  ON
  5  B/G  C21  ------  ON
  6  B/G  C25  ------  ON

select ⇅ and press OK
```

6 After selecting all the characters, press OK repeatedly until the cursor appears by the next programme position. Now the caption you chose is stored.

7 Repeat steps 4 to 6 to caption other channels.

8 Press MENU to go back to the original screen.



To reactivate automatic fine-tuning (AFT)
Repeat from the beginning and select "ON" in step 5.

Manual Fine-Tuning

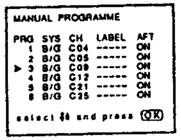
Normally, the automatic fine-tuning (AFT) is already working. However, if the picture of a programme is distorted, you can use the manual fine-tuning function to obtain better picture reception.

1 Press MENU to display the main menu.

2 Move the cursor (▶) to "PROGRAMME PRESET" with + ⇧ or – ⇩ and press OK. The PROGRAMME PRESET menu appears.

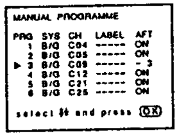
3 Move the cursor to "MANUAL PROGRAMME" with + ⇧ or – ⇩ and press OK. The MANUAL PROGRAMME menu appears.

4 Using + ⇧ or – ⇩ , move the cursor to the programme position corresponding to the channel which you want to manually fine-tune, and press OK repeatedly until the AFT position turns red.



```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL   AFT
  1  B/G  C04  ------  ON
  2  B/G  C05  ------  ON
▶ 3  B/G  C09  ------  ON
  4  B/G  C12  ------  ON
  5  B/G  C21  ------  ON
  6  B/G  C25  ------  ON

select ⇅ and press OK
```

5 Fine-tune the channel with + ⇧ or – ⇩ so that you get the best TV reception. As you press these buttons, the frequency changes from –15 to +15.



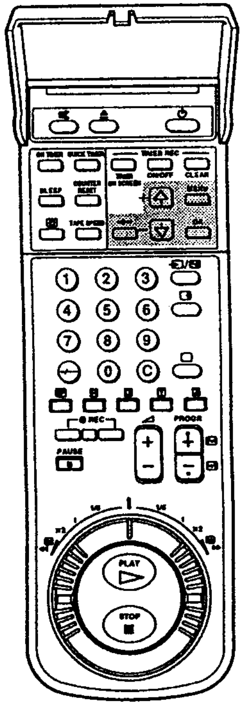
```
MANUAL PROGRAMME

PRG  SYS  CH   LABEL   AFT
  1  B/G  C04  ------  ON
  2  B/G  C05  ------  ON
▶ 3  B/G  C09  ------  - 3
  4  B/G  C12  ------  ON
  5  B/G  C21  ------  ON
  6  B/G  C25  ------  ON

select ⇅ and press OK
```

6 After fine-tuning, press OK. The cursor appears beside the next programme position. Now the fine-tuned level is stored.

7 Repeat steps 4 to 6 to fine-tune other channels.

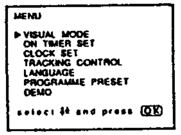
8 Press MENU to go back to the original screen.

1-2. SETTING THE CLOCK



You need to set the clock for using timer recording and quick-timer recording functions. Before you begin, lift the flap on the Remote Commander and locate the Menu operation buttons.

1 Press MENU to display the main menu.

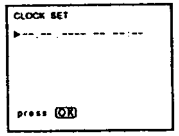


MENU

▶VISUAL MODE
ON TIMER SET
CLOCK SET
TRACKING CONTROL
LANGUAGE
PROGRAMME PRESET
DEMO

select ⇕ and press OK

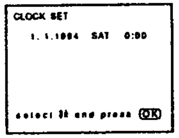
2 Move the cursor (▶) to "CLOCK SET" with + ⯅ or – ⯆ and press OK.
The CLOCK SET menu appears.



CLOCK SET
▶--.--.---- -- --:--

press OK

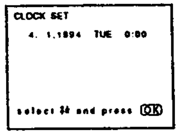
3 Press OK to start setting the clock.
The day section turns red.



CLOCK SET
1. 1.1994 SAT 0:00

select ⇕ and press OK

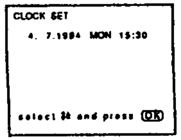
4 Set the day with + ⯅ or – ⯆ and press OK.
The month section turns red.



CLOCK SET
4. 1.1994 TUE 0:00

select ⇕ and press OK

5 Using + ⯅ or – ⯆ and OK, set the month, year, hour and minute in the same way as in step 4.



CLOCK SET
4. 7.1994 MON 15:30

select ⇕ and press OK

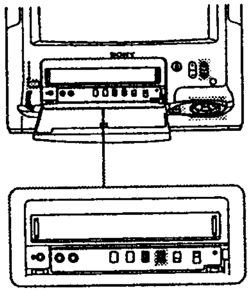
6 After setting the minute, press OK.
The clock starts working.

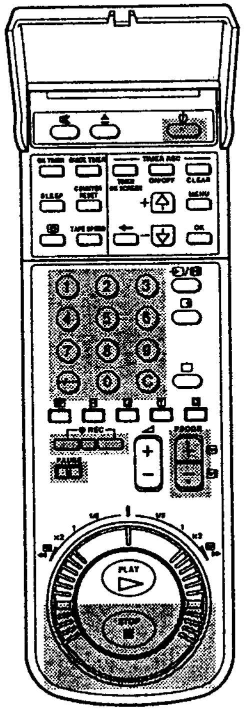
7 Press MENU to go back to the original screen.

If you have made a mistake
Press ← to go back to the previous position.

If power is interrupted or you disconnect the AC power cord for more than one hour
You have to re-set the clock.

1-3. RECORDING TV PROGRAMMES





Recording TV Programmes

1 Press ⏻ on the video TV.
When the STANDBY lamp is lit in red, skip this step.

2 Insert a cassette with a safety tab.

3 Select the programme position with PROGR+/–. You can also use number buttons on the Remote Commander. For double-digit numbers (e.g.14), first press -/--, then press 1 and 4.

4 Press REC ●.
When you use the Remote Commander, press two REC ● buttons at the same time.
The REC lamp on the front of the video TV lights up and recording begins.

To stop recording

Press STOP ■.
When the tape reaches the end, the video TV rewinds the tape automatically to the beginning, then stops. This function does not work when the power of the video TV is off.

To pause recording

Press PAUSE ❚❚.
To resume recording, press PAUSE ❚❚ again.

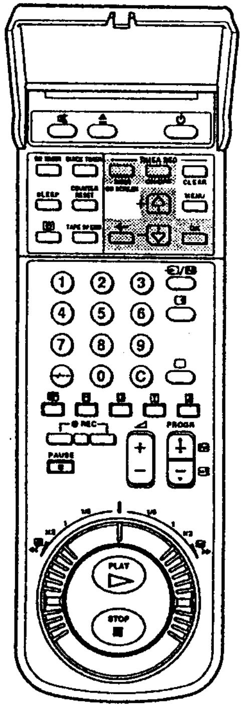
You can cut out an unwanted scene during recording with this button.
1 Press PAUSE ❚❚ when an unwanted scene appears on the screen.
Recording pauses.
2 Press PAUSE ❚❚ again to release the pause mode at the desired scene.
Recording resumes from the point set in step 1.

When the recording pause mode lasts for about 5 minutes, the video TV stops recording to protect the quality of video tapes.

Recording with the TV Off

Press ⏻ on the Remote Commander or ⏻ on the video TV.
The TV screen is turned off and the STANDBY lamp lights up.
The video TV continues recording.

1-4. RECORDING TV PROGRAMMES USING THE TIMER



The Timer Recording function allows you to preset your video TV to record up to six programmes within a one-month period.

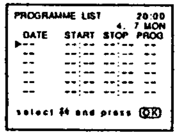
Before you begin

- Switch on the video TV.
- Make sure that the time and date clock are set. If not, the message "Please set the clock" is displayed on the screen. Refer to "Setting the clock" on page 12.
- Make sure that the loaded cassette has its safety tab. If a cassette without safety tab is loaded, the message "Tape with safety tab is required for recording" is displayed.

Setting the Timer

Example: Here is how to record a programme broadcast on programme position 26 from 20:15 to 21:55 on Saturday, 6th July 1994.

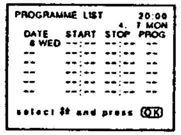
1 Press TIMER ON SCREEN.
The PROGRAMME LIST appears.



```
PROGRAMME LIST          20:00
                      4. 7 MON
  DATE     START  STOP  PROG
▶--        --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --

select ⇕ and press OK
```

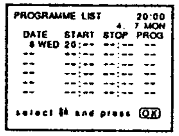
2 Press OK.
Today's date coloured red appears.

3 Press + ⇧ until "6 WED" appears.
For daily and weekly recording see "Daily and weekly recording" on page 23.

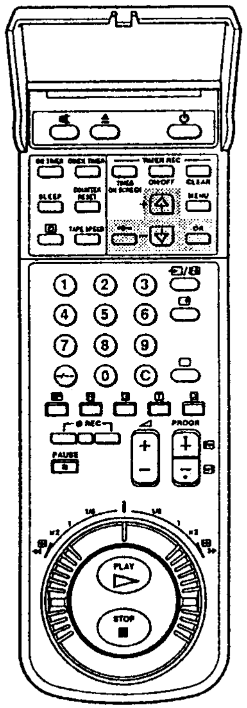


```
PROGRAMME LIST          20:00
                      4. 7 MON
  DATE     START  STOP  PROG
  6 WED    --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --

select ⇕ and press OK
```

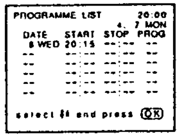
4 Press OK, then set the hour of the recording start time to "20" with + ⇧ or – ⇩ .



```
PROGRAMME LIST          20:00
                      4. 7 MON
  DATE     START  STOP  PROG
  6 WED    20:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --

select ⇕ and press OK
```

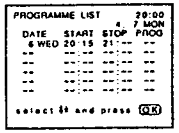


5 Press OK, then set the minute of the recording start time to "15" with + ⇧ or – ⇩ .



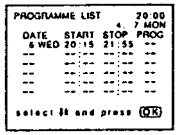
```
PROGRAMME LIST          20:00
                      4. 7 MON
  DATE     START  STOP  PROG
  6 WED    20:15  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --

select ⇕ and press OK
```

6 Press OK, then set the hour of the recording stop time to "21" with + ⇧ or – ⇩ .



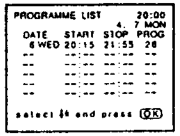
```
PROGRAMME LIST          20:00
                      4. 7 MON
  DATE     START  STOP  PROG
  6 WED    20:15  21:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --

select ⇕ and press OK
```

7 Press OK, then set the minute of the recording stop time to "55" with + ⇧ or – ⇩ .



```
PROGRAMME LIST          20:00
                      4. 7 MON
  DATE     START  STOP  PROG
  6 WED    20:15  21:55  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --

select ⇕ and press OK
```

8 Press OK, then set the programme position to "26" with + ⇧ or – ⇩ .



```
PROGRAMME LIST          20:00
                      4. 7 MON
  DATE     START  STOP  PROG
  6 WED    20:15  21:55  26
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --
  --       --:--  --:--  --

select ⇕ and press OK
```

9 Press OK.
The cursor (▶) appears at the left margin.

10 When you want to set other programmes, press – ⇩ to move down the cursor to the next line, then repeat steps 2 to 9.

11 Press TIMER REC ON/OFF.
The TIMER REC lamp on the front of the video TV lights up and the video TV enters timer recording standby mode.

Press TIMER ON SCREEN to erase the PROGRAMME LIST.
Turn off the video TV if you do not want to watch the TV.
The video TV turns on automatically and starts recording at the preset start time, and goes off at the preset stop time.

If you have made a mistake during timer setting

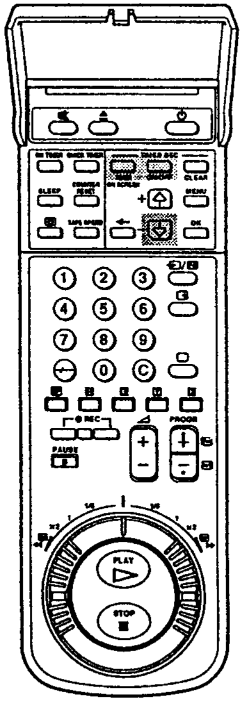
Press ← to go back to the previous position and correct the setting.

If you try to enter the recording start time prior to the current time

All the items of the setting will be erased.

If you try to do incorrect operation

The video TV displays a message on the screen to interrupt your setting.



Daily/weekly recording

You can preset your video TV to record the same programme every day of the week (daily recording) or the same programme on the same day every week (weekly recording). Press – ⇩ in step 3 until the desired setting appears in the "DATE" position. With each press, the setting changes as follows:

4 (today) → MON-SUN → MON-SAT → MON-FRI → EVERY SAT → EVERY FRI → EVERY THU → EVERY WED → EVERY TUE → EVERY MON → EVERY SUN → 3 (next month) → 2......

To stop timer recording

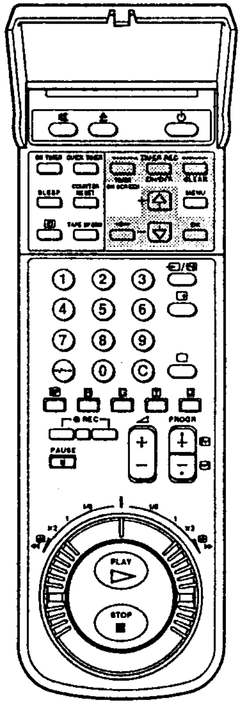
Press TIMER REC ON/OFF.

Using the Video TV before Timer Recording Starts

You can watch a TV programme, check the timer settings and reset the counter in timer recording standby mode. However, press TIMER REC ON/OFF to turn off the TIMER REC lamp on the front of the video TV to do the following operations:

- ejecting the cassette
- using the tape operation buttons
- changing or canceling the timer settings

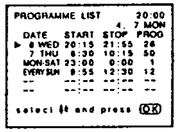
Remember to press TIMER REC ON/OFF again to make the TIMER REC lamp light after the above operations.



Checking the Timer Settings

You can display the list of the timer settings which you preset.

Press TIMER ON SCREEN.
The PROGRAMME LIST appears.



```
PROGRAMME LIST          20:00
                     4.  7 MON
  DATE     START  STOP   PROG
▶  6 WED   20:15  21:55   28
   7 THU    8:30  10:15   50
  MON-SAT  23:00   0:00    1
  EVERYSUN  8:55  12:30   12
  --       --:--  --:--   --
  --       --:--  --:--   --

select ⇕ and press OK
```

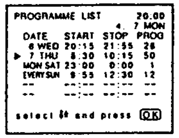
Press TIMER ON SCREEN again to erase the PROGRAMME LIST.

Changing or Canceling the Timer Settings

1 Press TIMER REC ON/OFF to turn off the TIMER REC lamp on the front of the video TV.

2 Press TIMER ON SCREEN to display the PROGRAMME LIST.

3 Select the setting you want to change or cancel with + ⇧ or – ⇩ .



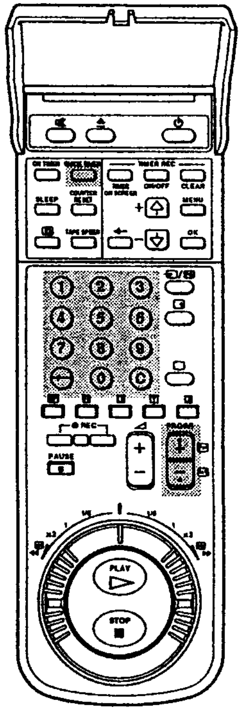
```
PROGRAMME LIST          20:00
                     4.  7 MON
  DATE     START  STOP   PROG
   6 WED   20:15  21:55   28
▶  7 THU    8:30  10:15   50
  MON SAT  23:00   0:00    1
  EVERYSUN  8:55  12:30   12
  --       --:--  --:--   --
  --       --:--  --:--   --

select ⇕ and press OK
```

4 **To change the setting**
Using + ⇧ or – ⇩ and OK, re-enter all the items.
Refer to "Setting the timer" steps 2 to 9 on pages 21 and 22.

To cancel the setting
Press TIMER REC CLEAR.

5 Press TIMER ON SCREEN to go back to the original screen.

6 If there are other timer settings on the list, press TIMER REC ON/OFF to set the video TV to timer recording standby mode.



To change the recording time period after quick-timer recording begins
Press QUICK TIMER until the desired time period appears.

To display the remaining time period during quick-timer recording
Press ⊕. The recording time period decreases minute by minute.

To stop quick-timer recording
Press TIMER REC ON/OFF.

Recording Using the Quick-Timer

You can preset your video TV to start timer recording immediately and to automatically stop recording after a specific time period.
If you have not set the clock, quick-timer recording cannot be done.

If you are recording

1 Press QUICK TIMER on the Remote Commander.
The "QUICK TIMER 0:00" appears on the screen.

2 Press QUICK TIMER repeatedly to select the recording time period. With each press, the time period changes as follows:

0:00 → 0:30 → 1:00 → .... → 3:30 → 4:00

Even if you switch off the video TV, it continues recording. After the selected time period has elapsed, recording stops automatically.

If you are not recording

1 Switch on the video TV.

2 Insert a cassette with its safety tab.

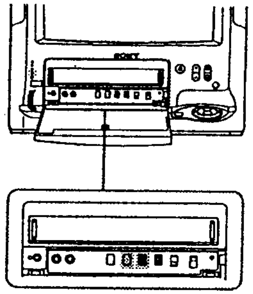
3 Select the programme position which you want to record.

4 Press QUICK TIMER on the Remote Commander.
The "QUICK TIMER 0:00" appears on the screen.

5 Press QUICK TIMER repeatedly to select the recording time period. With each press the time period changes as follows:

0:00 → 0:30 → 1:00 → .... → 3:30 → 4:00

The time period turns yellow and recording starts.
Even if you switch off the video TV, it continues recording.
When the preset time period has elapsed, the video TV stops recording.



Notes on VPS recording
- If recording times overlap due to a VPS time shift, the programme that was broadcast first has priority. Recording of the second programme begins when the first programme has finished.
- If the video TV could not receive a VPS signal because it was too weak or because the station failed to transmit VPS signals, timer recording is made without the VPS function.

Timer Recording with VPS Signals (KV-V1410D Models only)

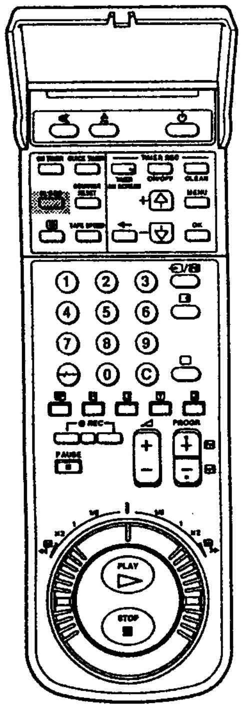
The German broadcasting system transmits VPS (Video Programme System) signals with the TV programmes. These signals assure you that your timer recordings are made regardless of broadcast delays, early starts, or broadcast interruptions. For example, if an urgent news bulletin interrupts a regular programme, recording stops. As soon as the interrupted programme resumes, recording starts again.

1 If the TIMER REC lamp is lit on the front panel, press TIMER REC ON/OFF to turn it off.

2 Before setting the timer, press VPS on the inside of the front panel so that the VPS lamp lights up.

3 Set the timer following the steps in "Setting the timer" (pages 21 to 23).

1-5. SWITCHING OFF AUTOMATICALLY —SLEEP TIMER



You can automatically switches the video TV into standby mode after a selected time period.

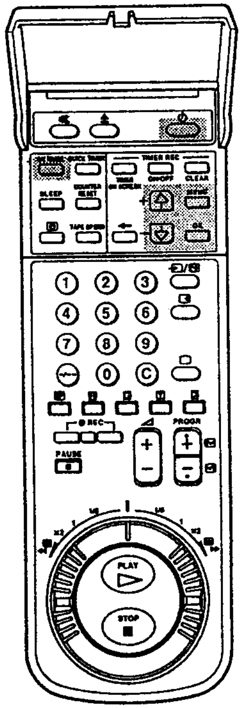
Press SLEEP.
With each press, the time period (in minutes) changes as follows:

OFF → 30 → 60 → 90

One minute before the TV switches into standby mode, a message "Good night" is displayed on the screen.

To cancel the timer
Press SLEEP to select "OFF".

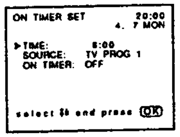
1-6. SWITCHING ON AT YOUR DESIRED TIME —ON TIMER



You can preset your video TV to automatically switch on at a desired time. You can select the TV programme or video playback to be switched on.

1 Press MENU to display the main menu.

2 Move the cursor to "ON TIMER SET" with + ⇧ or – ⇩ and press OK.
The ON TIMER SET menu appears.



```
ON TIMER SET           20:00
                     4.  7 MON

▶TIME:           8:00
 SOURCE:       TV PROG 1
 ON TIMER:     OFF

select ⇕ and press OK
```

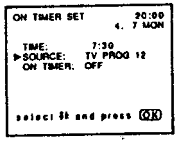
3 Press OK.
The timer setting hour section turns red.

4 Set the hour with + ⇧ or – ⇩ and press OK.
The minute section turns red.

5 Set the minutes (by one minute) with + ⇧ or – ⇩ and press OK.
The cursor appears beside "TIME."

6 Move the cursor to "SOURCE" with + ⇧ or – ⇩ and press OK.

7 Select TV or VCR ▶ (video playback) to be switched on with + ⇧ or – ⇩ and press OK.
When you select TV, select the programme position with + ⇧ or – ⇩ and press OK.



```
ON TIMER SET           20:00
                     4.  7 MON

 TIME:           7:30
▶SOURCE:       TV PROG 12
 ON TIMER:     OFF

select ⇕ and press OK
```

To erase the message
Press any button on the video TV or Remote Commander.

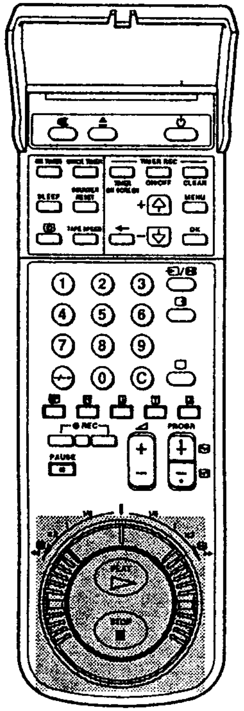
8 Move the cursor to "ON TIMER" with + ⇧ or – ⇩ and press OK, then select ON with + ⇧ or – ⇩ and press OK.

9 Press MENU to go back to the original screen.

10 Press ON TIMER.
The ON TIMER lamp on the front of the video TV lights up.
If you are not using the video TV, press ⏻ on the Remote Commander to set the video TV in standby mode.

At the preset time, the video TV automatically switches on and a message "Good morning" is displayed for five minutes.
If you do not press any button for 2 hours, the video TV automatically shuts off.

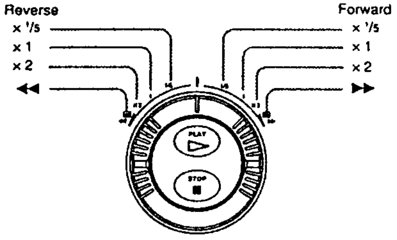
1-7. PLAYING/SEARCHING A TAPE AT VARIOUS SPEEDS



You can play a tape at various speeds. It is convenient to locate a desired scene.

Changing the Speed and Direction of Playback Using the DUAL MODE SHUTTLE Ring

During playback or playback pause, turn the ring and hold it. To play forward, turn it clockwise, and turn it counterclockwise to play in reverse. Playback speed is selected according to the turning angle as shown in the illustration below.



When you release the ring, normal playback or playback pause is resumed.

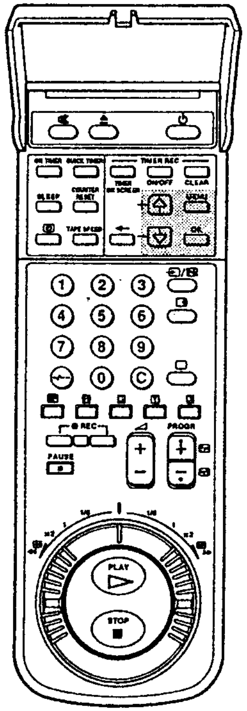
Picture Search

During playback, turn the DUAL MODE SHUTTLE ring to ◀◀ (rewind) or ▶▶ (fast forward) and hold it.
A high-speed picture appears on the TV screen.
To resume normal playback, release the DUAL MODE SHUTTLE ring at the desired scene.

Viewing the Tape in Fast Forward or Rewind Mode

Turn the DUAL MODE SHUTTLE ring clockwise to ▶▶ during fast forward or counterclockwise to ◀◀ during rewind.
While you hold the ring, you can view the picture.
When you release the ring, fast forward or rewind mode is resumed.

1-8. ENHANCING VIDEO PICTURE QUALITY



To go back to automatic tracking
Select AUTO in the TRACKING CONTROL menu with + ⇧ or − ⇩ and press OK.

Adjusting the Tracking

Adjusting the Tracking Automatically

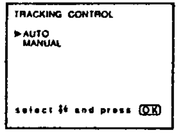
The tracking condition is automatically adjusted on this video TV. The AUTO TRACKING indicator will appear while the video TV is searching for best tracking condition.

Adjusting the Tracking Manually

If streaks or snow noise appear on the video playback picture, adjust the tracking condition manually.

1 Press MENU to display the main menu.

2 Move the cursor to "TRACKING CONTROL" with + ⇧ or − ⇩ and press OK.
The TRACKING CONTROL menu appears.

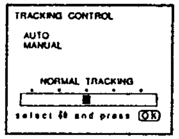


TRACKING CONTROL

▶AUTO
MANUAL

select ⇕ and press OK

3 Select MANUAL with + ⇧ or − ⇩ and press OK.
The tracking meter appears.



TRACKING CONTROL

AUTO
MANUAL

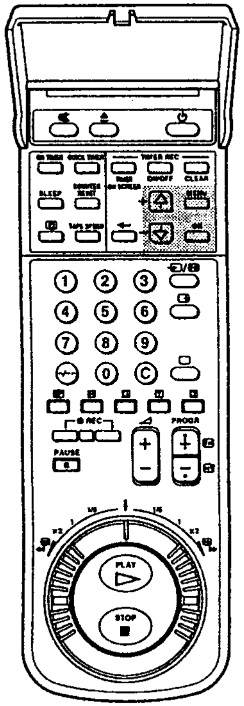
NORMAL TRACKING

select ⇕ and press OK

4 Using + ⇧ or − ⇩ , adjust the tracking to get the best picture.

5 Press OK.
The main menu reappears.

6 Press MENU to go back to the original screen.

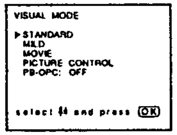


Adjusting with the Optimum Picture Control (OPC)

This function allows you to improve playback quality by adjusting the system parameter automatically according to the condition of the video tape.
This function is set to ON at the factory. To maintain better picture quality, it is advisable to leave the function on so that the OPC lamp remains lit. The OPC function works on all types of tapes, even on rental tapes.
To change the setting, use the menu display.

1 Press MENU to display the main menu.

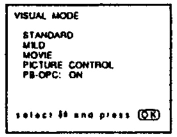
2 Move the cursor to VISUAL MODE with + ⇧ or – ⇩ and press OK.
The VISUAL MODE menu appears.



```
VISUAL MODE

▶STANDARD
 MILD
 MOVIE
 PICTURE CONTROL
 PB-OPC:  OFF


select ⇅ and press (OK)
```

3 Move the cursor to PB-OPC with + ⇧ or – ⇩ and press OK.

4 Select ON or OFF with + ⇧ or – ⇩ and press OK.



```
VISUAL MODE

 STANDARD
 MILD
 MOVIE
 PICTURE CONTROL
 PB-OPC:  ON


select ⇅ and press (OK)
```

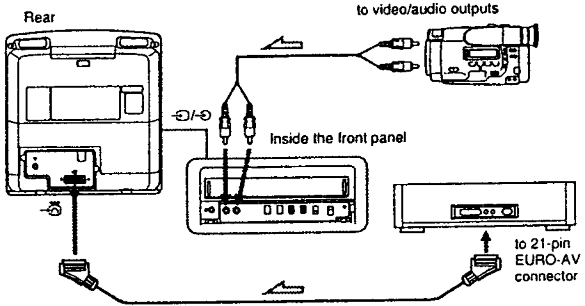
5 Press MENU to erase the main menu.

About the Auto Head Cleaner

The auto head cleaner built into this set automatically cleans the video heads when a cassette is loaded or unloaded. If the effect of head cleaning is not sufficient even after a cassette has been loaded/unloaded several times, clean the heads using the Sony V-25CL video head cleaning cassette. For details on head cleaning see page 35.

1-9. CONNECTING OPTIONAL EQUIPMENT

Watching the Picture Input from Optional Equipment



VMC-212CE EURO cable (not supplied)

To watch the video input signal

Press ⇥ repeatedly until the desired input indicator appears on the screen.

- ⇥1 for audio/video input or RGB input (KV-V1410D models only) through the ⇥ connector
- ⇥ 2 for audio/video input through the ⇥/⇥ jacks on the front

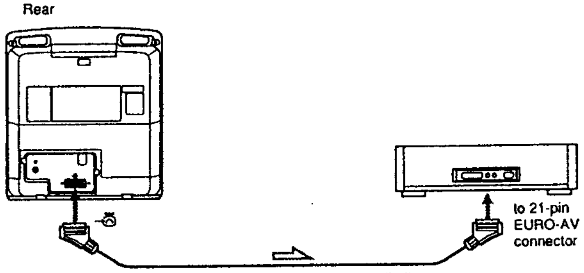
Editing with Another VCR

Using an additional VCR, you can edit a tape.

Editing from another VCR

Connections are the same as in "Watching the picture input from optional equipment."

Editing onto another VCR

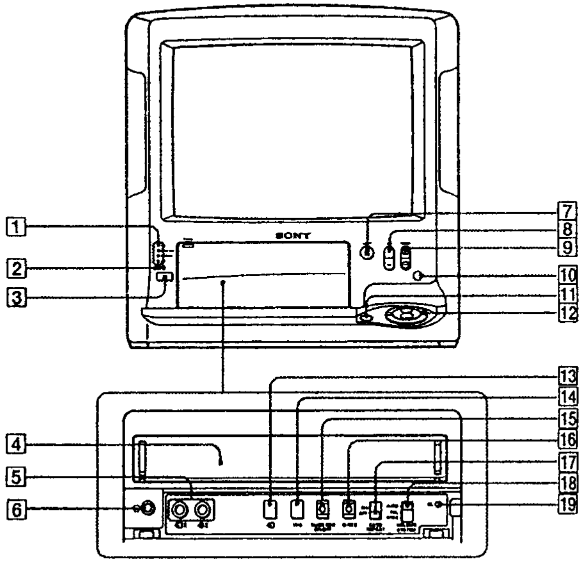


VMC-212CE EURO cable (not supplied)

1-10. INDEX TO PARTS AND CONTROLS

Video TV Set—Front

This section briefly describes the buttons and controls on the video TV set and on the Remote Commander. For more information, refer to the pages next to each description.


1
2
3
SONY
7
8
9
10
11
12
4
5
6
13
14
15
16
17
18
19

1 Lamps
  REC(recording) (page 20)
  TIMER REC(recording) (page 23)
  ON TIMER (page 28)
  VPS (KV-V1410D models only) (page 26)

2 ⏻ (standby) lamp (page 13)

3 ⏻ (main power) switch (page 6, 13)

4 Cassette compartment (page 17)

5 -⊃/-⊃ (video/audio input) jacks (page 32)

6 ∩ (headphones) jack (page 16)

7 EJECT ⏏ button (page 17)

8 ◿ (volume) +/– buttons (page 13)

9 PROGR(programme) +/– buttons (page 13)

10 Remote sensor

11 PAUSE ❚❚ button (pages 18, 20)

12 DUAL MODE SHUTTLE ring (pages 18, 29)

13 -⊃ (input select) button (pages 16, 32)

14 VPS button (KV-V1410D models only) (page 26)

15 TIMER REC ON/OFF button (pages 23, 24)

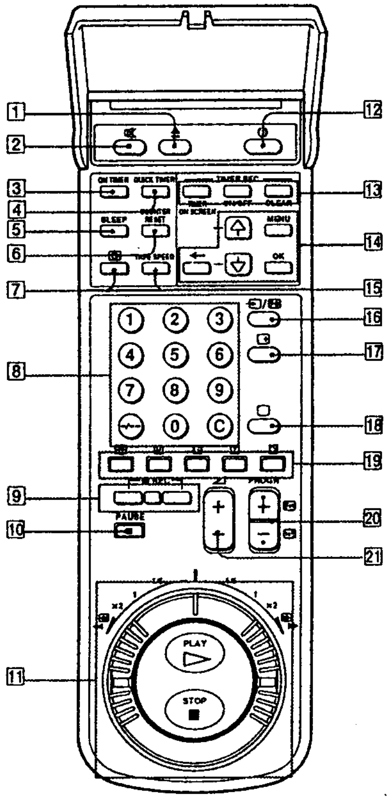
16 REC(recording) ● button (page 20)

17 AUTO REPEAT ON/OFF switch (page 19)

18 COLOUR SYSTEM switch (page 18)

19 CL (clear) button (page 34)

Remote Commander


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
ON TIMER
QUICK TIMER
TIMER REC
SLEEP
COUNTER RESET
MENU
OK
TAPE SPEED
1
2
3
4
5
6
7
8
9
0
C
PAUSE
PROGR
PLAY
STOP

1 ⏏ (eject)button (page 17)

2 🔇 (muting) button (page 14)

3 ON TIMER button (page 28)

4 QUICK TIMER button (page 25)

5 SLEEP button (page 27)

6 COUNTER RESET button (page 19)

7 ◎ (time display) button (pages 16)

8 Number button (page 7, 13)

9 REC (recording) ● buttons (page 20)

10 PAUSE ❚❚ button (pages 18, 20)

11 DUAL MODE SHUTTLE ring (pages 18, 29)

12 ⏻ (standby) button (pages 6, 13)

13 TIMER REC buttons
  TIMER ON SCREEN (pages 21, 24)
  ON/OFF (pages 23, 24)
  CLEAR (page 24)

14 Menu operation buttons (page 6)
  MENU
  +⇧/–⇩
  ←
  OK

15 TAPE SPEED button
The button does not function on this video TV.

16 -⊃ (input select)/⊕ button (pages 16, 32)

17 ⊡ (on-screen display) button (page 14, 19)

18 ▢ (TV power on/TV mode select) button (pages 6, 13)

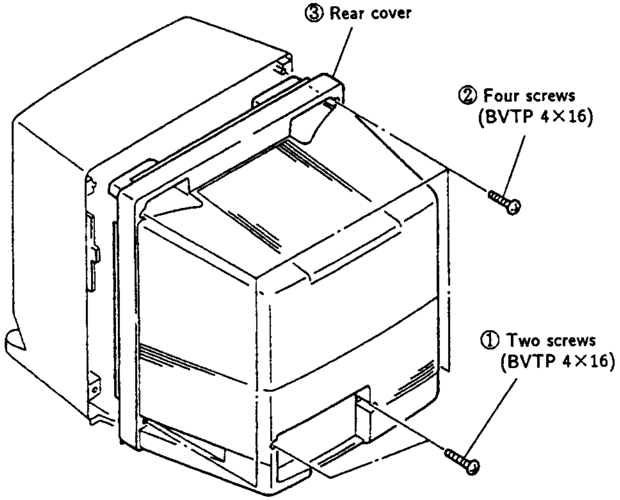
19 Teletext operation buttons
The buttons do not function on this video TV.

20 PROG (programme) +/– /⊕/⊕ buttons (page 13)

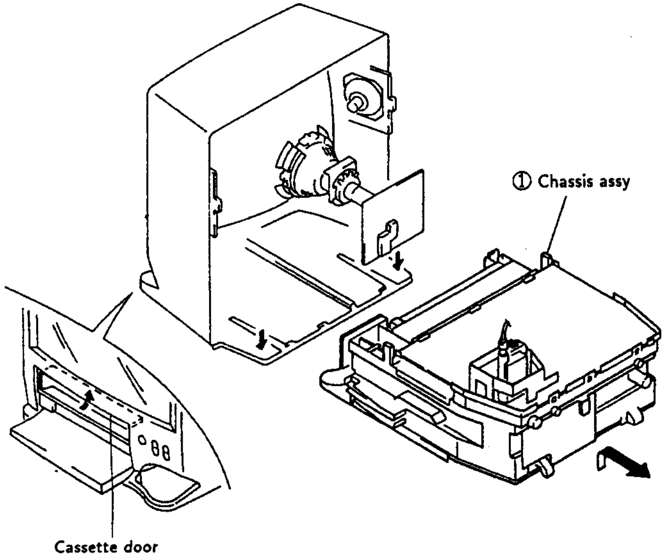
21 ◿ (volume) +/– buttons (page 13)

SECTION 2
DISASSEMBLY

2-1. REAR COVER REMOVAL

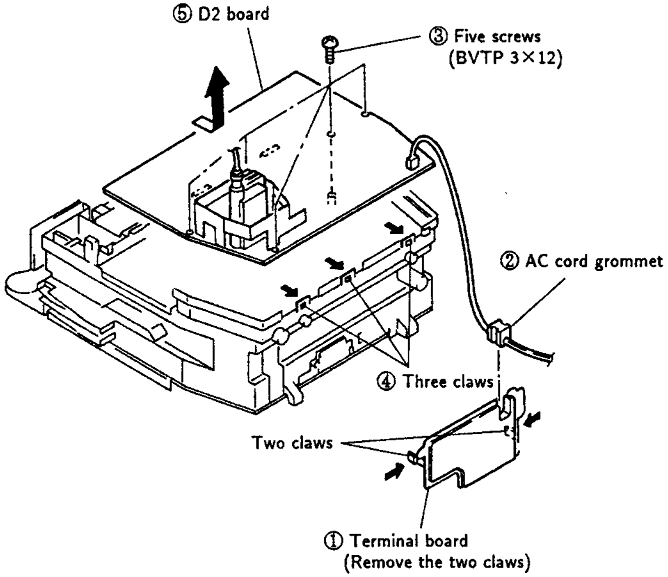

③ Rear cover
② Four screws
(BVTP 4×16)
① Two screws
(BVTP 4×16)

2-2. CHASSIS ASSY REMOVAL

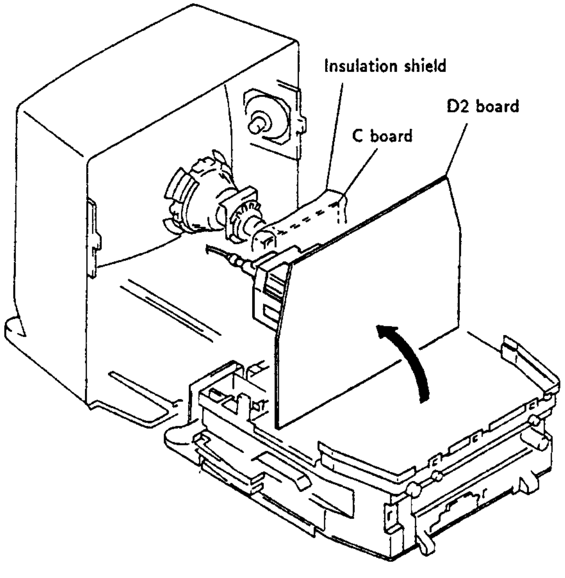

① Chassis assy
Cassette door

※ Open the casette door and fit the chassis ass'y in there.

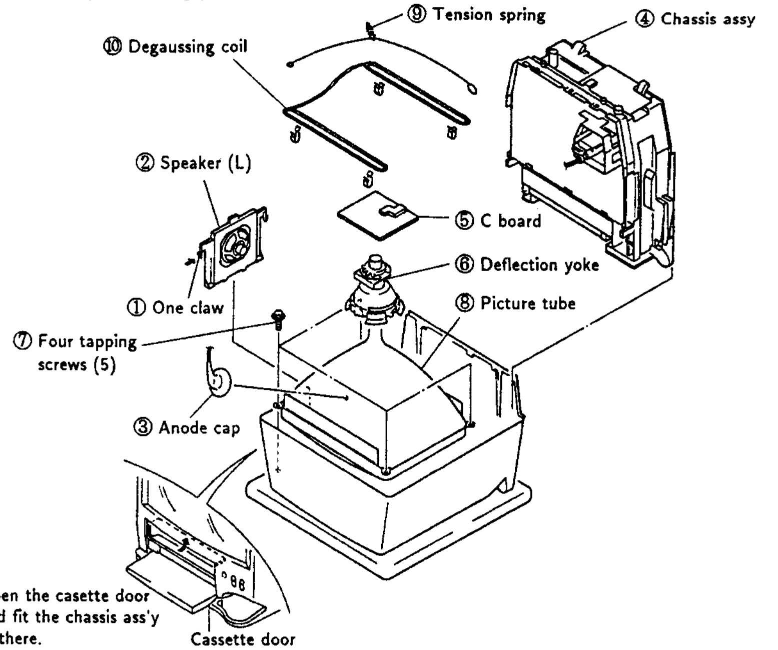
2-3. D2 BOARD REMOVAL


⑤ D2 board
③ Five screws
(BVTP 3×12)
② AC cord grommet
④ Three claws
Two claws
① Terminal board
(Remove the two claws)

2-4. SERVICE POSITION


Insulation shield
D2 board
C board

2-5. PICTURE TUBE REMOVAL

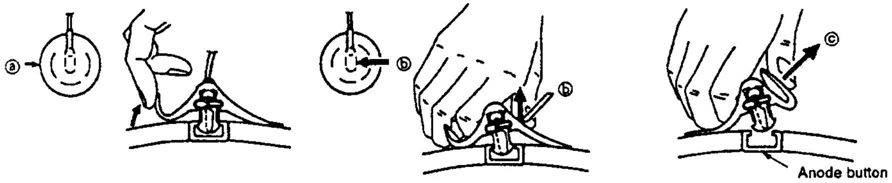

⑨ Tension spring
④ Chassis assy
⑩ Degaussing coil
② Speaker (L)
⑤ C board
⑥ Deflection yoke
① One claw
⑧ Picture tube
⑦ Four tapping
screws (5)
③ Anode cap
Cassette door

※ Open the casette door
and fit the chassis ass'y
in there.

• REMOVAL OF ANODE-CAP

NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT chield or carbon painted on the CRT, after removing the anode.

• REMOVING PROCEDURES


ⓐ
ⓑ
ⓑ
ⓒ
Anode button

① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.

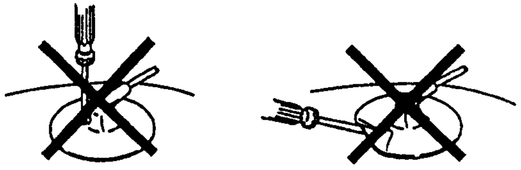
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ©.

• HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with sharp shaped material!

② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.



SECTION 3

SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

1. Beam Landing
2. Convergence
3. Focus
4. Screen (G 2) and White Balance

Note: Test Equipment Required.

1. Color bar Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital multimeter

The controls and switch should be set as follows unless otherwise noted :

PICTURE control.............. normal
BRIGHTNESS control........ normal

Perform the adjustments in order as follows:

Preparation:

- Feed in the white pattern signal.
- Before starting, degauss the entire screen.

3-1. BEAM LANDING

1. Input a raster signal with the pattern generator.
2. Loosen the deflection yoke mounting screw, and set the purity control to the center as shown in Fig.2
3. Turn the raster signal of the pattern generator to green.
4. Move the deflection yoke backward, and adjust with the purity control so that green is in the center and red and blue are at the sides evenly. (Fig.3)
5. Move the deflection yoke forward, and adjust so that the entire screen becomes green. (Fig.1)
6. Switch over the raster signal to red and blue and confirm the condition.
7. When the position of the deflection yoke is determined, tighten it with the deflection yoke mounting screw.
8. When landing at the corner is not right, adjust by using the disk magnets. (Fig.4)

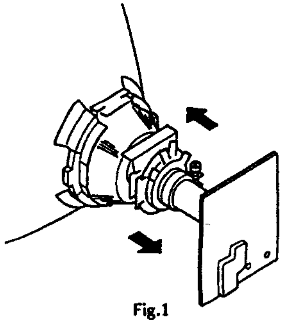


Fig.1

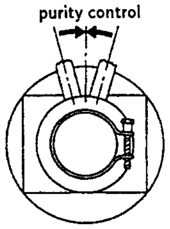


Fig.2

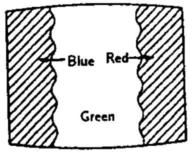


Fig.3

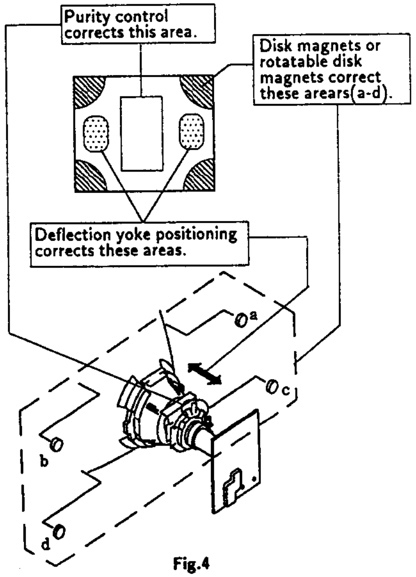

Purity control corrects this area.
Disk magnets or rotatable disk magnets correct these arears(a-d).
Deflection yoke positioning corrects these areas.
a
b
c
d

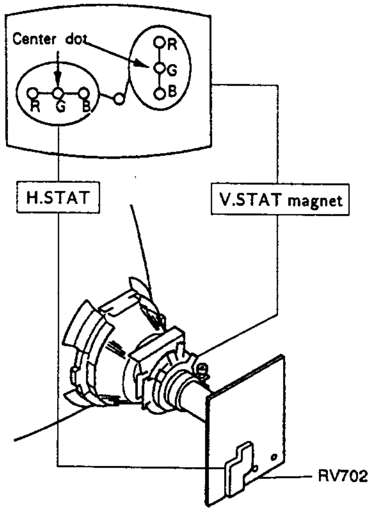
Fig.4

3-2. CONVERGENCE

Preparation:

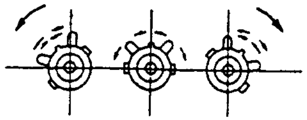
- Before starting, perform FOCUS, V.LIN and V.SIZE adjustment.
- Set BRIGHTNESS control to minimum.
- Feed in dot pattern.

(1) Horizontal and Vertical Static Convergence

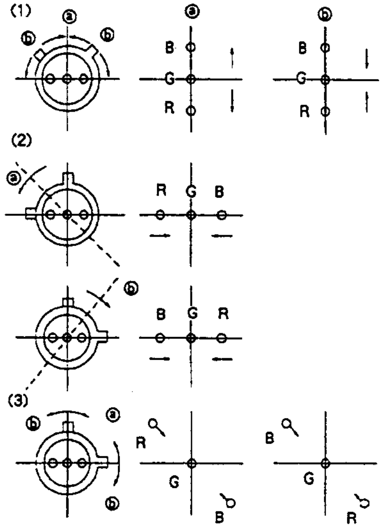


1. Adjust H.STAT VR to converge red, green and blue dots the in center of the screen.(Horizontal movement)
2. Adjust V. STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)
3. If the red, green and blue dots do not converge on the center of screen with H.STAT VR, perform horizon-tal convergence adjustment using H.STAT VR and V.STAT magnet as shown below. (In this case, H.STAT VR and V.STAT magnet effect each other.)

- Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



4.When the V.STAT magnet is moved in the direction of arrow ⓐ and ⓑ, red, green and blue dots move as shown below.

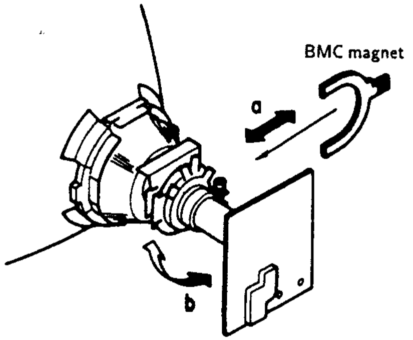


If the blue dot does not converge with red and green dots, perform following steps.

Move BMC magnet (a) to correct insufficient H.static convergence.

Rotate BMC magnet (b) to correct insufficient V.static convergence.

In either case, repeat Beam Landing Adjustment.

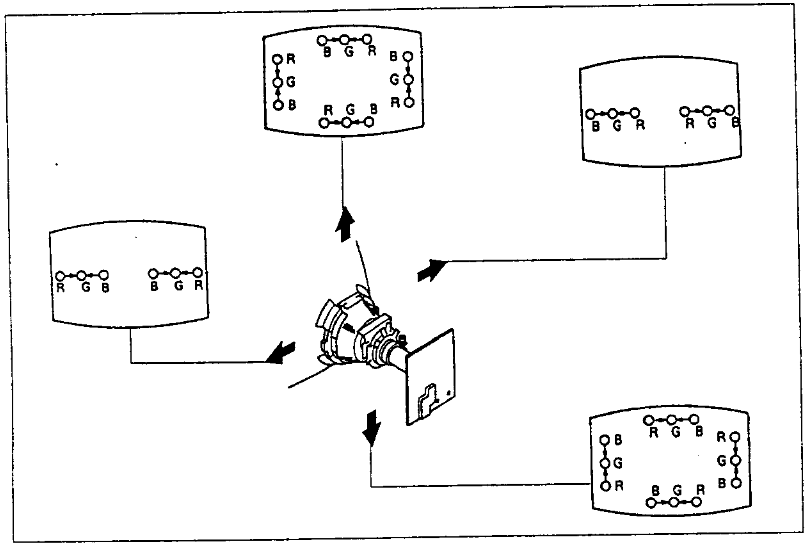


(2) Dynamic Convergence Adjustment

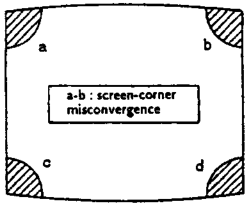
Preparation:

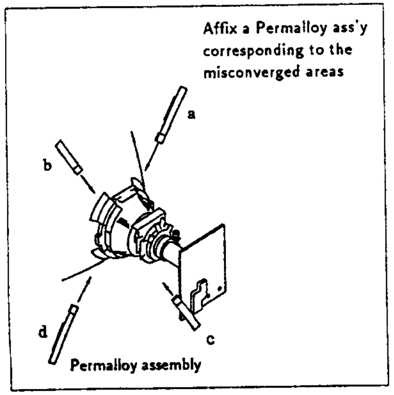
- Before starting perform Horizontal and Vertical static convergence Adjustment.

1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence as shown below.
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.

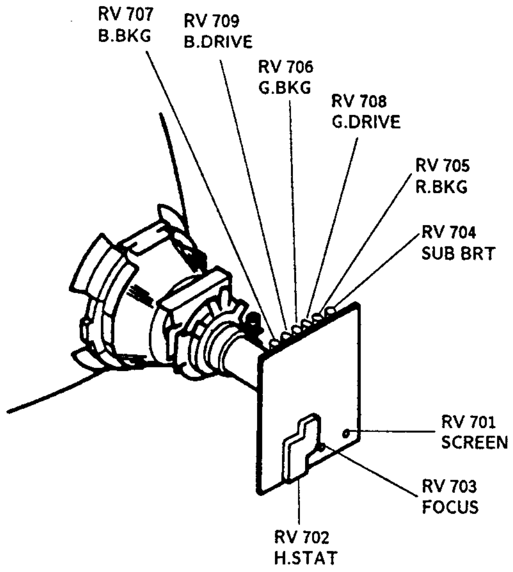

R
G
B
B G R
R G B
B
G
R
B G R
R G B
R G B
B G R
B
G
R
R G B
B G R
R
G
B

(3) Screen-corner Convergence


a
b
c
d
a-b : screen-corner misconvergence


Affix a Permalloy ass'y corresponding to the misconverged areas

a
b
c
d
Permalloy assembly


RV 707
B.BKG
RV 709
B.DRIVE
RV 706
G.BKG
RV 708
G.DRIVE
RV 705
R.BKG
RV 704
SUB BRT
RV 701
SCREEN
RV 703
FOCUS
RV 702
H.STAT

3-3. FOCUS

Adjust RV 703 FOCUS control for best picture.

3-4. SCREEN(G2) and WHITE BALANCE

[SCREEN(G2)]

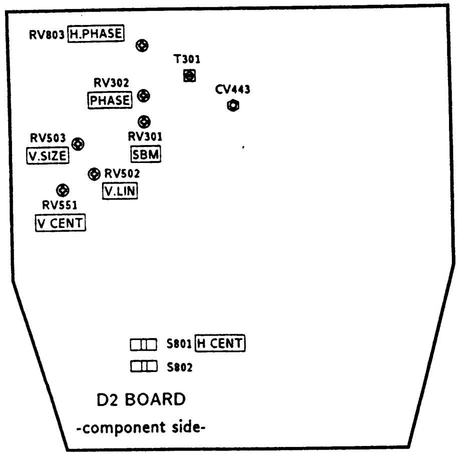
1. Input a dots pattarn.
2. Set the PIC, BRT controls at minimum.
3. Supply DC 165V by equipment into R, G, and B cathode.
4. Adjust RV701 (SCREEN) so that the raster is invisible.

[WHITE BALANCE]

1. Input a all white signl.
2. Set the PIC control to minimum and set the BRT control at normal.
3. Turn RV 708 (G.DRIVE) and RV 709 (B.DRIVE) fully clockwise.
4. Adjust BKG controls for best white balance.
5. Set the PICTURE control to maximum. Observe the screen and adjust the DRIVE controls for best white balance.
6. Repeat steps 4 and 5.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. D2 BOARD ADJUSTMENT



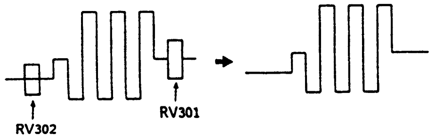
A · P · C ADJUSTMENT (CV443)……… (PAL)

1. Short circuit between pin ④ and pin ㊼ of IC301 with jumper.
2. Input the PAL color-bar signal.
3. Set the PIC, COL, and BRT controls to normal.
4. Adjust CV443 for suitable color synchronization.
5. Remove a jumper.

ANTI PAL, LINE CRAWLING ADJUSTMENT (RV301,RV302,T301)

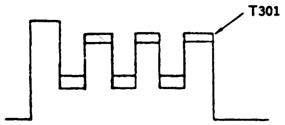
- **ANTI PAL ADJUSTMENT**

1. Input the PAL special color pattern signal.
2. Set the PIC,COL and BRT controls to normal.
3. Connect the oscilloscope to pin ㊲ of IC301. (B OUT)
4. Adjust RV301 (DELAY) and RV302(PHASE) to obtain the waveform as shown below.

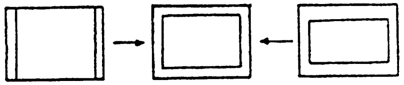


- **LINE CRAWLING ADJUSTMENT**

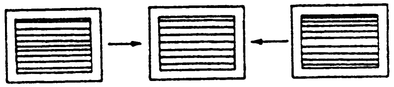
1. Input the PAL color-bar signal.
2. Set the PIC,COL and BRT controls to normal.
3. Connect the oscilloscope to pin ㊲ of IC301.
4. Adjust T301 for minimum line crawling.



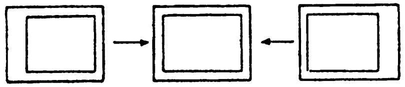
RV503 V.SIZE (VERTICAL SIZE)



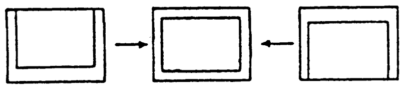
RV502 V.LIN (VERTICAL LINEARITY)



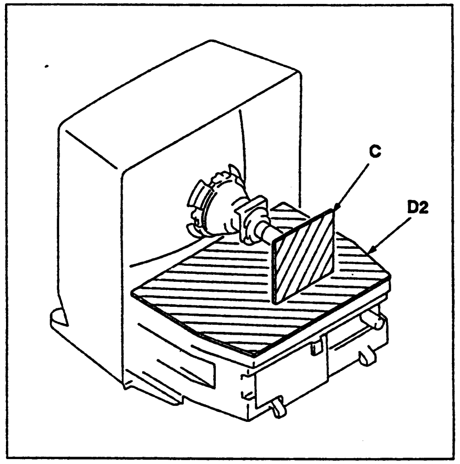
S801, S802, RV803 H.PHASE (HORIZONTAL CENTER)



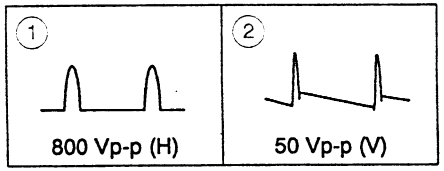
RV551 V.CENT (VERTICAL CENTER)



5-2. CIRCUIT BOARDS LOCATION (TV SECTION)



- **D2 BOARD WAVEFORMS (1/2)**



Schematic diagram

D2 board (1/2) ➡

5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS (TV SECTION)

Note:

- **All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytic and tantalums.**
- **All resistors are in ohms.**
  kΩ =1000Ω, MΩ =1000KΩ
- **Indication of resistance, which does not have one for rating electrical power, is as follows.**

  Pitch: 5 mm
  Rating electrical power ¼ W (CHIP: 1/10W)
- -▭- **: nonflammable resistor.**
- △ **: internal component.**
- ▭ **: panel designation, or adjustment for repair.**
- **All variable and adjustable resistors have characteristic curve B, unless otherwise noted.**
- Readings are taken with a 10MΩ digital multimeter.
- Voltage are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- * : Can not be measured.
- Circled numbers are waveform references.
- ——— : B+ bus.
- – – – : B – bus.
- ┈┈┈ : signal path.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

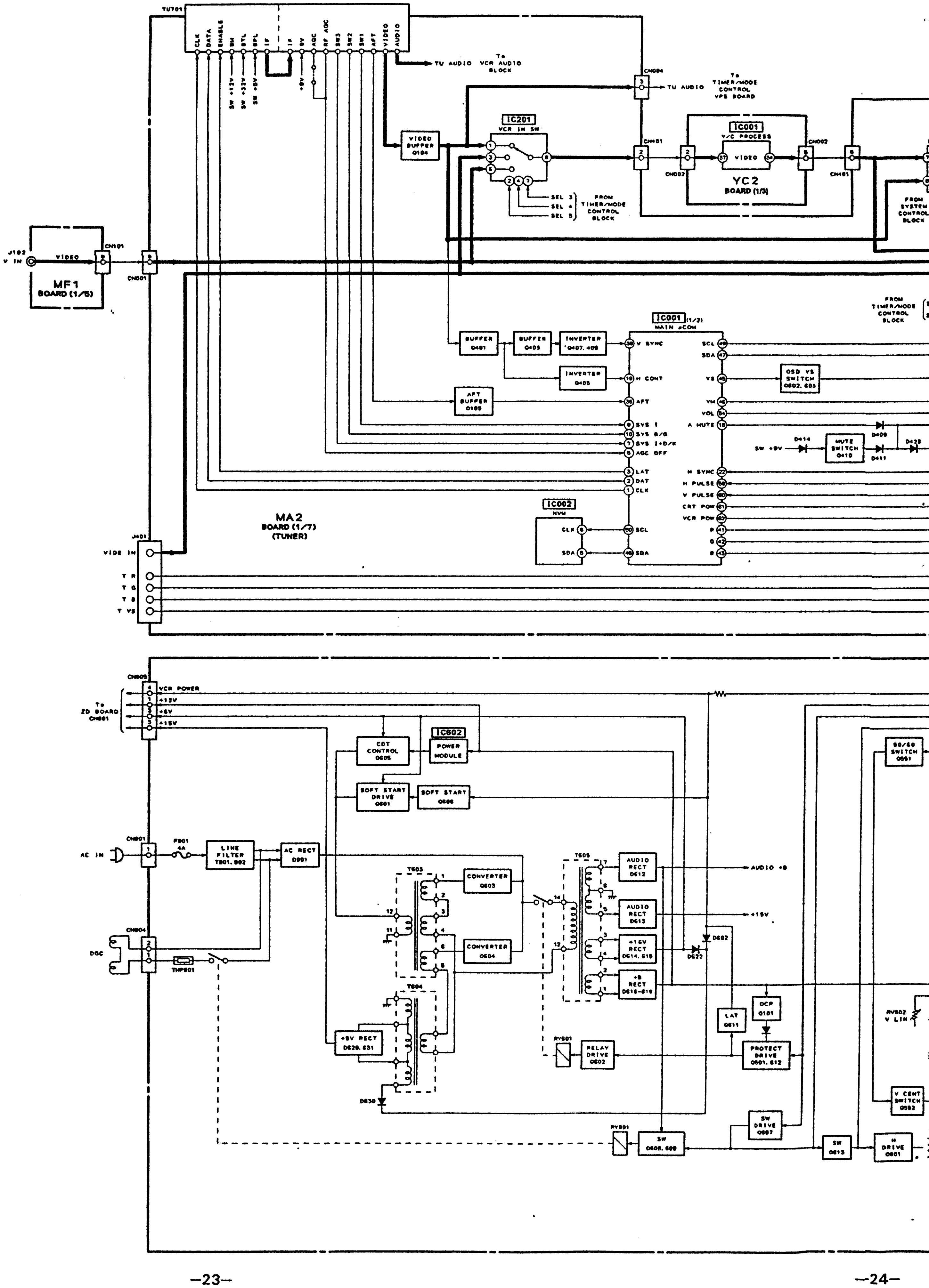
Reference information

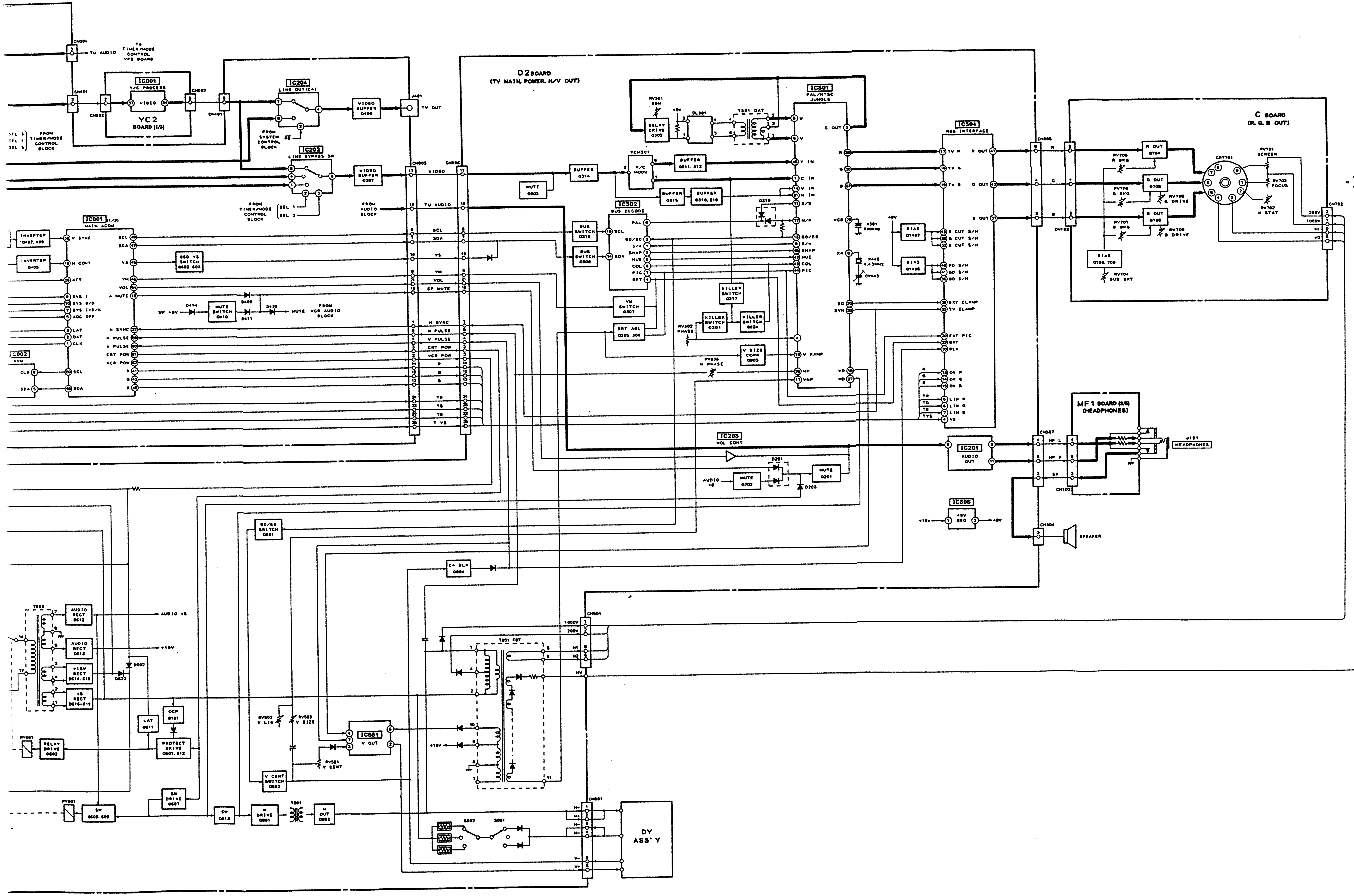
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

SECTION 2
DISASSEMBLY

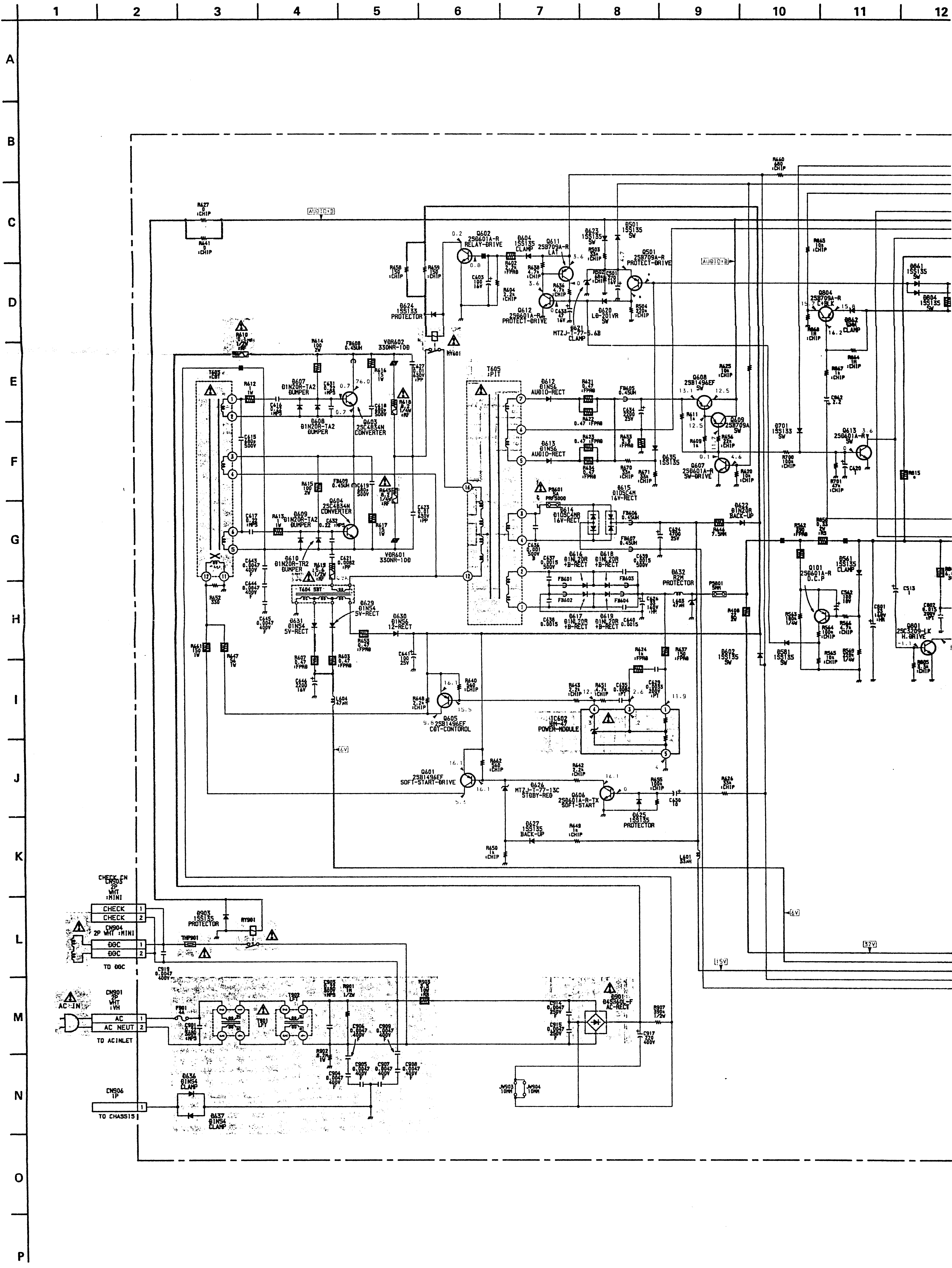
5-1. BLOCK DIAGRAM (TV SECTION)

*** Refer to the FRAME SCHEMATIC DIAGRAM (• See page 77)**


TU701
CLK
DATA
ENABLE
BM
BTL
BPL
IF
IF
5V
AGC
RF AGC
SW3
SW2
SW1
AFT
VIDEO
AUDIO
SW +12V
SW +32V
SW +5V
+5V
TU AUDIO
To VCR AUDIO BLOCK
CN004
TU AUDIO
To TIMER/MODE CONTROL VPS BOARD
IC201
VCR IN SW
VIDEO BUFFER Q104
SEL 3
SEL 4
SEL 5
FROM TIMER/MODE CONTROL BLOCK
CN401
IC001
Y/C PROCESS
VIDEO
YC2
BOARD (1/3)
CN002
CN002
CN401
FROM SYSTEM CONTROL BLOCK
J102
V IN
VIDEO
CN101
MF1
BOARD (1/5)
CN001
FROM TIMER/MODE CONTROL BLOCK
IC001 (1/2)
MAIN µCOM
BUFFER Q401
BUFFER Q403
INVERTER Q407, 408
V SYNC
INVERTER Q405
H CONT
AFT BUFFER Q105
AFT
SYS I
SYS B/G
SYS I+D/K
AGC OFF
LAT
DAT
CLK
SCL
SDA
VS
OSD VS SWITCH Q602, 603
YM
VOL
A MUTE
D409
D414
SW +9V
MUTE SWITCH Q410
D411
D423
H SYNC
H PULSE
V PULSE
CRT POW
VCR POW
R
G
B
IC002
NVM
CLK
SDA
SCL
SDA
MA2
BOARD (1/7)
(TUNER)
J401
VIDE IN
T R
T G
T B
T VS
CN605
To ZD BOARD CN981
VCR POWER
+12V
+5V
+15V
CDT CONTROL Q605
IC602
POWER MODULE
SOFT START DRIVE Q601
SOFT START Q606
CN601
AC IN
F601 4A
LINE FILTER T601, 602
AC RECT D601
CN604
DGC
THP601
T603
CONVERTER Q603
CONVERTER Q604
T604
+5V RECT D629, 631
D630
T605
AUDIO RECT D612
AUDIO +B
AUDIO RECT D613
+15V
+15V RECT D614, 615
+B RECT D616-619
D602
D622
LAT Q611
OCP Q101
PROTECT DRIVE Q501, 512
RY601
RELAY DRIVE Q602
RY801
SW Q608, 609
SW DRIVE Q607
SW Q613
H DRIVE Q801
50/60 SWITCH Q551
RV502 V LIN
V CENT SWITCH Q552


D2 BOARD
(TV MAIN, POWER, H/V OUT)
C BOARD
(R, G, B OUT)
MF1 BOARD (2/5)
(HEADPHONES)
YC2
BOARD (1/3)
IC001 Y/C PROCESS
IC001 (1/2) MAIN µCOM
IC002 NVM
IC204 LINE OUT (C+)
IC202 LINE BYPASS SW
IC301 PAL/NTSC JUNGLE
IC302 BUS DECODE
IC304 RGB INTERFACE
IC203 VOL CONT
IC201 AUDIO OUT
IC306 +9V REG
IC561 V OUT
TV AUDIO
To TIMER/MODE CONTROL VPS BOARD
FROM TIMER/MODE CONTROL BLOCK
FROM SYSTEM CONTROL BLOCK
FROM AUDIO BLOCK
VIDEO BUFFER Q406
VIDEO BUFFER Q207
TV OUT
VIDEO
DELAY DRIVE Q302
DL301
T301 DAT
Y/C MCU
BUFFER Q314
BUFFER Q311, 313
BUFFER Q315
BUFFER Q318, 319
MUTE Q303
BUS SWITCH Q316
BUS SWITCH Q309
YM SWITCH Q307
BRT ABL Q305, 306
KILLER SWITCH Q317
KILLER SWITCH Q301
KILLER SWITCH Q024
V SIZE CORR Q803
RV302 PHASE
RV803 H PHASE
BIAS Q1407
BIAS Q1406
X301
X443 4.43MHz
CV443
R OUT Q704
G OUT Q705
B OUT Q706
BIAS Q708, 709
RV701 SCREEN
RV703 FOCUS
RV702 H STAT
RV704 SUB BRT
RV705 R BKG
RV706 G BKG
RV707 B BKG
RV708 G DRIVE
RV709 B DRIVE
CRT701
V901 PICTURE TUBE
J101 HEADPHONES
SPEAKER
INVERTER Q407, 409
INVERTER Q405
OSD VS SWITCH Q602, 603
MUTE SWITCH Q410
MUTE VCR AUDIO BLOCK
SW +9V
50/60 SWITCH Q551
C+ BLK Q804
AUDIO +8
MUTE Q202
MUTE Q201
T605
AUDIO RECT D612
AUDIO RECT D613
+15V RECT D614, 615
+8 RECT D616-618
AUDIO +8
+15V
LAT Q611
OCP Q101
PROTECT DRIVE Q601, 612
RELAY DRIVE Q602
RY601
RV901
SW Q608, 609
SW DRIVE Q607
SW Q613
H DRIVE Q801
T801
H OUT Q802
RV502 V LIN
RV503 V SIZE
RV551 V CENT
V CENT SWITCH Q552
T501 FBT
S802
S801
DY ASS'Y
CN001 CN401 CN002 CN402 CN403 CN306 CN305 CN102 CN702 CN307 CN302 CN304 CN501 CN801
1000V
200V
H1
H2
HV

(1) Schematic Diagram of D2 Board (1/2)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A
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D
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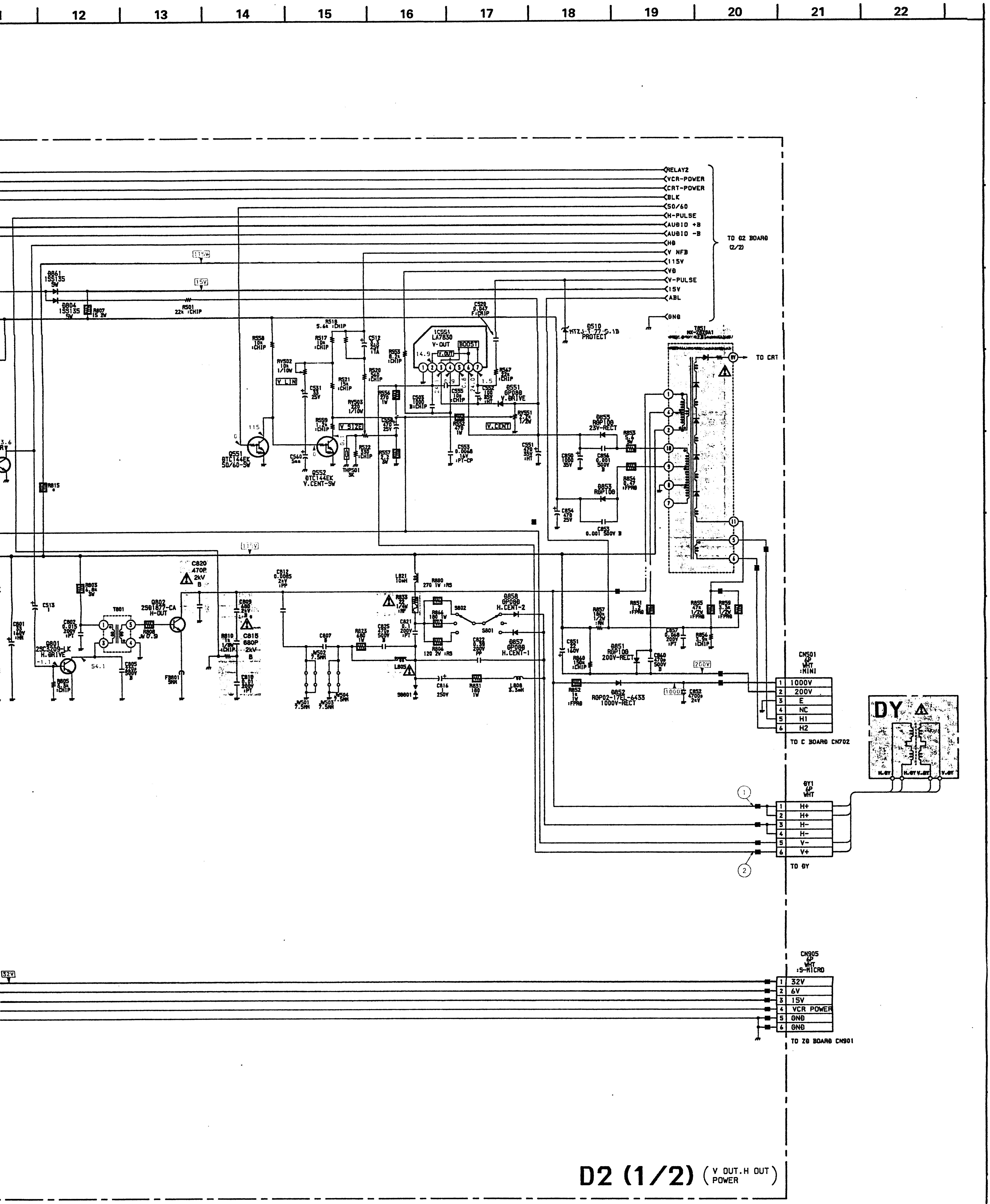
G
H
I
J
K
L
M
N
O
P
R427 0 :CHIP
R441 0 :CHIP
AUDIO+B
Q602 2SD601A-R RELAY-DRIVE
D604 1SS135 CLAMP
Q611 2SB709A-R LAT
D623 1SS135 SW
D501 1SS135 SW
Q501 2SB709A-R PROTECT-DRIVE
AUDIO+B
Q612 2SD601A-R PROTECT-DRIVE
D620 LG-201VR SW
D621 MTZJ-T-77-5.6B CLAMP
D624 1SS133 PROTECTOR
RY601
R610
R614 100 2W
FB608 0.45UH
VDR602 330NR-10D
T603 :CBT
Q607 D1NZ0R-TA2 DUMPER
D608 D1NZ0R-TA2 DUMPER
Q603 2SC4834N CONVERTER
T605 :PIT
D612 D1NS6 AUDIO-RECT
D613 D1NS6 AUDIO-RECT
FB405 0.45UH
D635 1SS135
Q608 2SB1496EF SW
Q609 2SB709A SW
Q607 2SD601A-R SW-DRIVE
D701 1SS133 SW
Q613 2SD601A-R SW
Q604 2SC4834N CONVERTER
D609 D1NZ0R-TA2 DUMPER
D610 D1NZ0R-TR2 DUMPER
VDR601 330NR-10D
PS601 5A PRF5000
D614 D1DSC4MR 16V-RECT
D615 D1DSC4M 16V-RECT
FB406 0.45UH
FB407 0.45UH
D622 D1NZ0R BACK-UP
R446 7.5MM
D616 D1NL20R +B-RECT
D618 D1NL20R +B-RECT
D617 D1NL20R +B-RECT
D619 D1NL20R +B-RECT
D632 R2M PROTECTOR
PS801 5MM
T604 SBT
D629 D1NS4 5V-RECT
D631 D1NS4 5V-RECT
D630 D1NS6 12-RECT
Q605 2SB1496EF CBT-CONTOROL
IC602 IGN-47 POWER-MODULE
D602 1SS135 SW
D581 1SS135 SW
D804 2SB709A-R CLAMP
D861 1SS135 SW
D804 1SS135 SW
D842 CLAMP
Q101 2SD601A-R O.C.P
D561 1SS135 CLAMP
Q801 2SC3209-LK H.DRIVE
6V
Q601 2SB1496EF SOFT-START-DRIVE
D626 MTZJ-T-77-13C STDBY-REG
Q606 2SD601A-R-TX SOFT-START
D625 1SS135 PROTECTOR
D627 1SS135 BACK-UP
L601 33UH
CHECK CN CN905 2P WHT :MINI
CHECK
CHECK
CN904 2P WHT :MINI
DGC
DGC
TO DGC
D903 1SS135 PROTECTOR
RY901
THP901
C919 0.0047 400V
CN901 2P :VH
AC IN
AC
AC NEUT
TO ACINLET
F901 4A
T901 LFT
T902 LFT
R901 1M 1/2W
R903 3.9 10W :RB
D901 D4SB60L-F AC-RECT
R907 330k 1/2W
C917 220 400V
R902 8.2M 1W
JW903 10MM
JW904 10MM
CN906 1P
TO CHASSIS
D636 D1NS4 CLAMP
D637 D1NS4 CLAMP
6V
32V
15V


12
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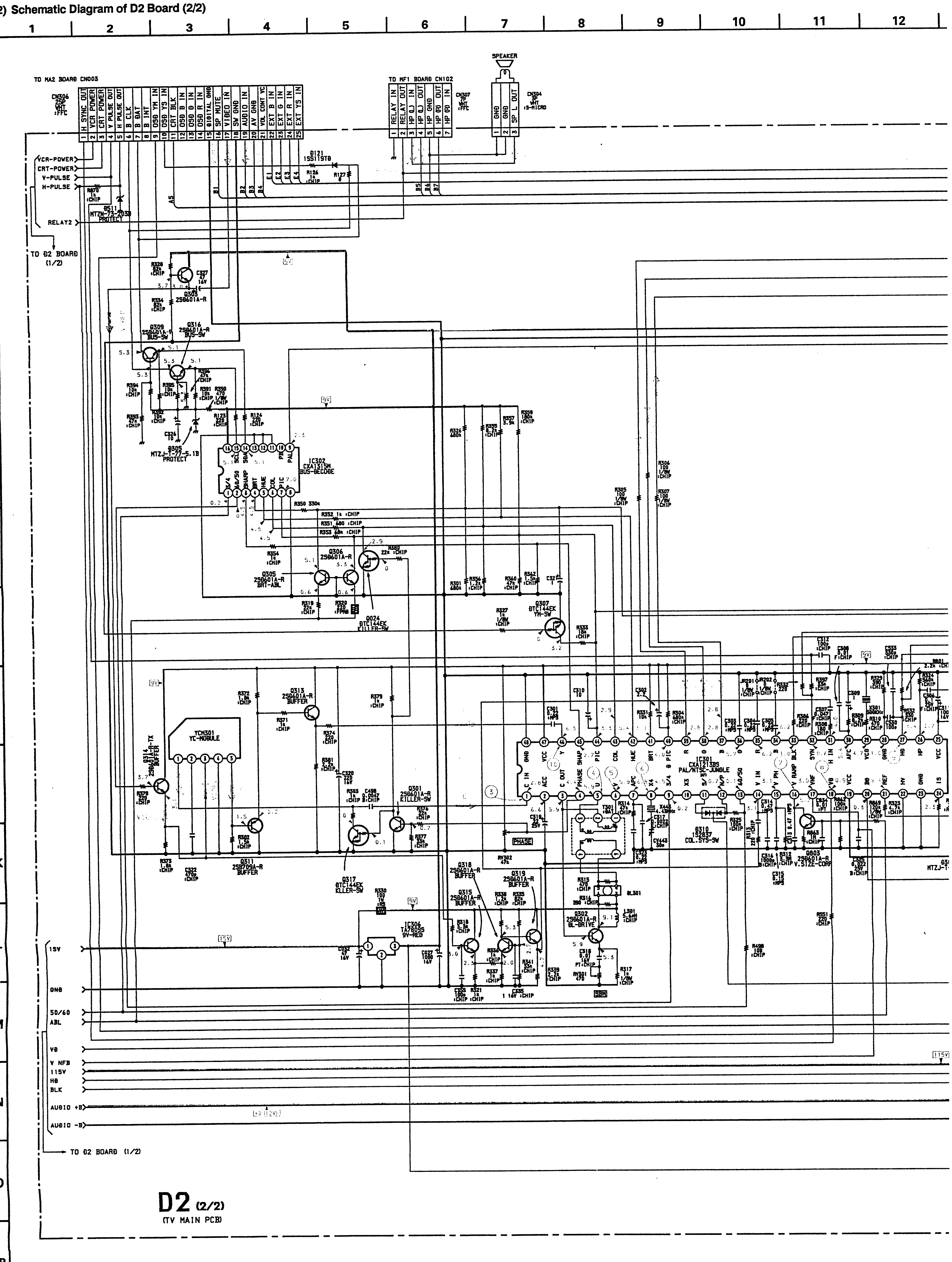
22
RELAY2
VCR-POWER
CRT-POWER
BLK
50/60
H-PULSE
AUDIO +B
AUDIO -B
HD
V NFB
115V
VD
V-PULSE
15V
ABL
GND
TO D2 BOARD (2/2)
115V
15V
D861 1SS135 SW
D804 1SS135 SW
R807 15 2W
R501 22k :CHIP
R558 10k :CHIP
R518 5.6k :CHIP
R517 10k :CHIP
C512 3.3 25V :TA
RV502 10k 1/10W
V LIN
C531 33 25V
R521 15k :CHIP
R520 560 :CHIP
RV503 220 1/10W
R559 1.2k :CHIP
V SIZE
R522 330 :CHIP
THP501 3K
C560 5mm
Q551 DTC144EK 50/60-SW
Q552 DTC144EK V.CENT-SW
R553 8.2k :CHIP
IC551 LA7830 V-OUT
V.OUT
BOOST
14.9
24.1
0.9
0.8
24.0
1.5
C520 0.047 F:CHIP
R567 22k :CHIP
R556 270 1W
C558 470 25V
R557 2.2 2W
C503 1000 B:CHIP
C555 10p :CHIP
C552 100 35V :HT
D551 GP08D V.DRIVE
R552 470 1W
RV551 2.2k 1/2W
V.CENT
C553 0.0068 16V :PT-CP
C551 470 35V :HT
D510 MTZJ-T-77-5.1B PROTECT
T851 NX-2820A1 FBT
HV
TO CRT
D855 RGP10G 23V-RECT
R853 5.6 3W
C850 1000 35V
C856 0.001 500V B
R854 0.47 :FPRD
D853 RGP10G
C854 470 25V
C853 0.001 500V B
R815
C820 470P 2kV B
C812 0.0085 2kV :PP
R803 6.8k 3W
C513 1
C801 33 160V :HR
C802 0.015 200V :PT
T801
Q802 2SD1877-CA H-OUT
R808 JW (7.5)
C809 680 2kV B
C815 680P 2kV B
R810 1k 1/8W :CHIP
C810 0.01 200V :PT
Q801 2SC3209-LK H.DRIVE
-1.1
54.1
C805 220p 500V B
R805 3.3k :CHIP
FB801 5MM
C807
JW502 7.5MM
JW501 7.5MM
JW503 7.5MM
JW504 7.5MM
R823 680 1W
C825 470p 500V B
L821 10mH
R880 270 1W :RS
R833 22 1/4W :RF
C821 0.1 200V :PT
R864 180 1W
R806 120 2V :RS
S802
S801
D858 GP08D H.CENT-2
D857 GP08D H.CENT-1
C822 0.39 200V PP
L805
SG801
C816 1 250V
R831 180 1W
L808 3.3mH
R857 180k 1/2W :RN
R851 1.2 :FPRD
R855 47k 1/2W :FPRD
R859 3.3k 1/2W :FPRD
C857 0.068 200V :PT
R856 3.9k :CHIP
C851 22 160V
R860 150k :CHIP
D851 RGP10G 200V-RECT
C860 470p 500V B
200V
R852 1k 1W :FPRD
D852 RGP02-17EL-6433 1000V-RECT
1000V
C852 4700p 2kV
CN501 6P WHT :MINI
1 1000V
2 200V
3 E
4 NC
5 H1
6 H2
TO C BOARD CN702
DY
H.DY
H.DY
V.DY
V.DY
DY1 6P WHT
1 H+
2 H+
3 H-
4 H-
5 V-
6 V+
①
②
TO DY
32V
CN905 6P WHT :S-MICRO
1 32V
2 6V
3 15V
4 VCR POWER
5 GND
6 GND
TO Z8 BOARD CN901

D2 (1/2) (V OUT.H OUT POWER)

B-SS4714<AEP>-D2.-P1

2) Schematic Diagram of D2 Board (2/2)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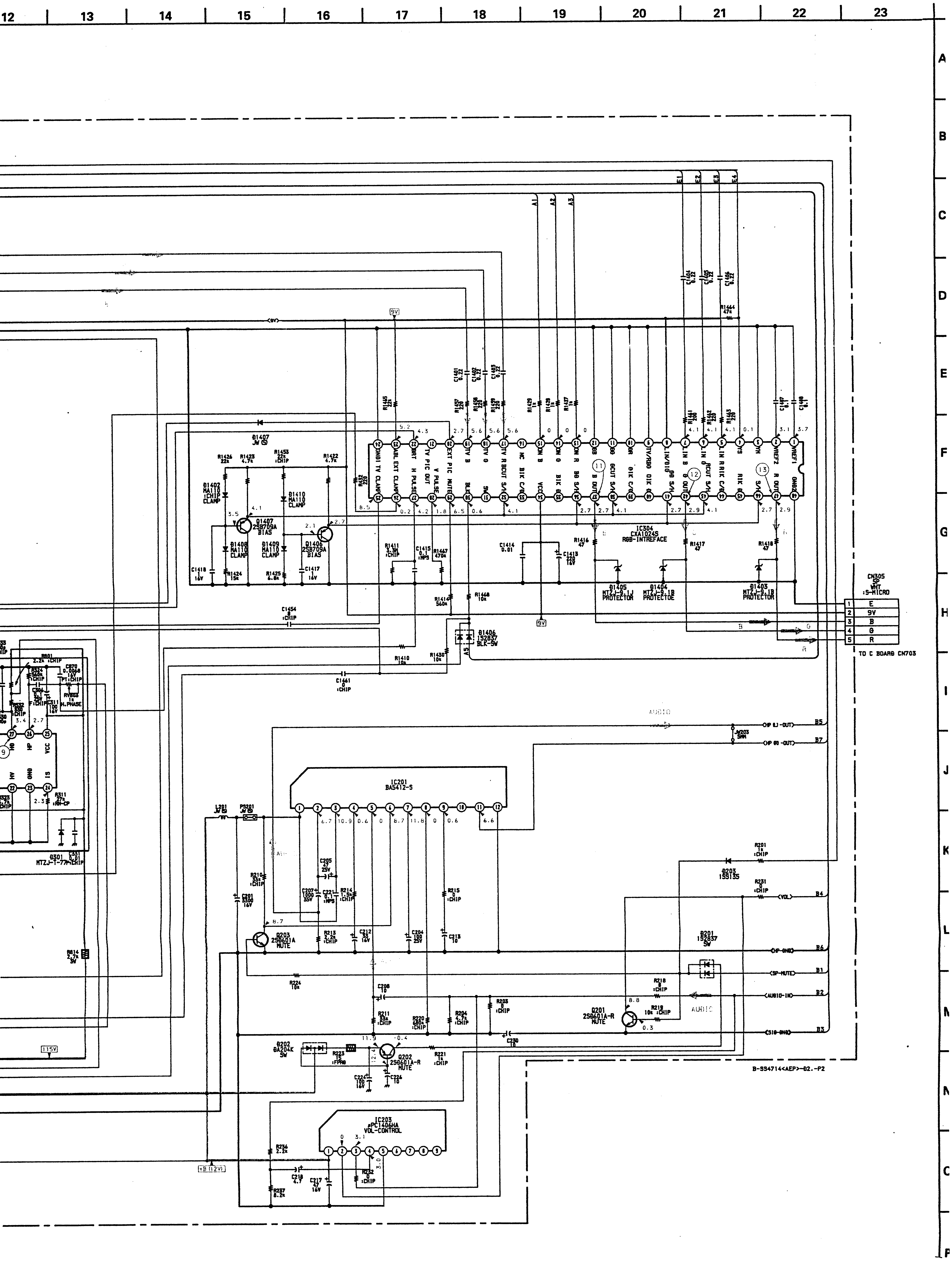
12
TO MA2 BOARD CN003
CN306 25P WHT :FFC
H SYNC OUT
VCR POWER
CRT POWER
V PULSE OUT
H PULSE OUT
B CLK
B DAT
B INT
OSD YM IN
OSD YS IN
CRT BLK
OSD B IN
OSD G IN
OSD R IN
DIGITAL GND
SP MUTE
VIDEO IN
SW GND
AUDIO IN
AV GND
VOL CONT VC
EXT B IN
EXT G IN
EXT R IN
EXT YS IN
TO MF1 BOARD CN102
RELAY IN
RELAY OUT
HP (L) IN
HP (L) OUT
HP GND
HP (R) OUT
HP (R) IN
CN307 7P WHT :FFC
SPEAKER
GND
GND
SP L OUT
CN304 3P WHT :S-MICRO
VCR-POWER
CRT-POWER
V-PULSE
H-PULSE
RELAY2
TO D2 BOARD (1/2)
D121 1SS119TB
D511 MTZJ-T-72-20B PROTECT
Q303 2SB601A-R
Q309 2SB601A-R BUS-SW
Q316 2SB601A-R BUS-SW
D305 MTZJ-T-77-5.1B PROTECT
IC302 CXA1315M BUS-DECODE
SCL
SDA
PAL
PB
SHARP
BRT
HUE
COL
PIC
Q305 2SB601A-R BRT-ABL
Q306 2SB601A-R
Q024 DTC144EK KILLER-SW
Q307 DTC144EK YM-SW
Q313 2SB601A-R BUFFER
YCM301 YC-MODULE
Q314 2SB601A-R-TX BUFFER
Q311 2SB709A-R BUFFER
Q301 2SB601A-R KILLER-SW
Q317 DTC144EK KILLER-SW
Q318 2SB601A-R BUFFER
Q319 2SB601A-R BUFFER
Q315 2SB601A-R BUFFER
IC306 TA7809S 9V-REG
Q302 2SB601A-R BL-DRIVE
BL301
L301 5.6mH
RV301 470
RV302 47k
PHASE
SBH
IC301 CXA1213BS PAL/NTSC-JUNGLE
C IN
ACC
C OUT
PHASE SHAP
PIC
COL
HUE
BRT
APC
X4
X3
B PIC
R
G
B
BLK
V RAMP
V PH
SYN
H IN
AFC
VCO
GND
HD
HP
VCC
REF
HV
VD
D310 1SS357 COL.SYS-SW
Q803 2SB601A-R V.SIZE-CORR
X301 500kHz
T301
X443 4.43MHz
CV443 30p
15V
GND
50/60
ABL
VD
V NFB
115V
HD
BLK
AUDIO +B
AUDIO -B
TO D2 BOARD (1/2)
5V
9V
15V
115V
D2 (2/2)
(TV MAIN PCB)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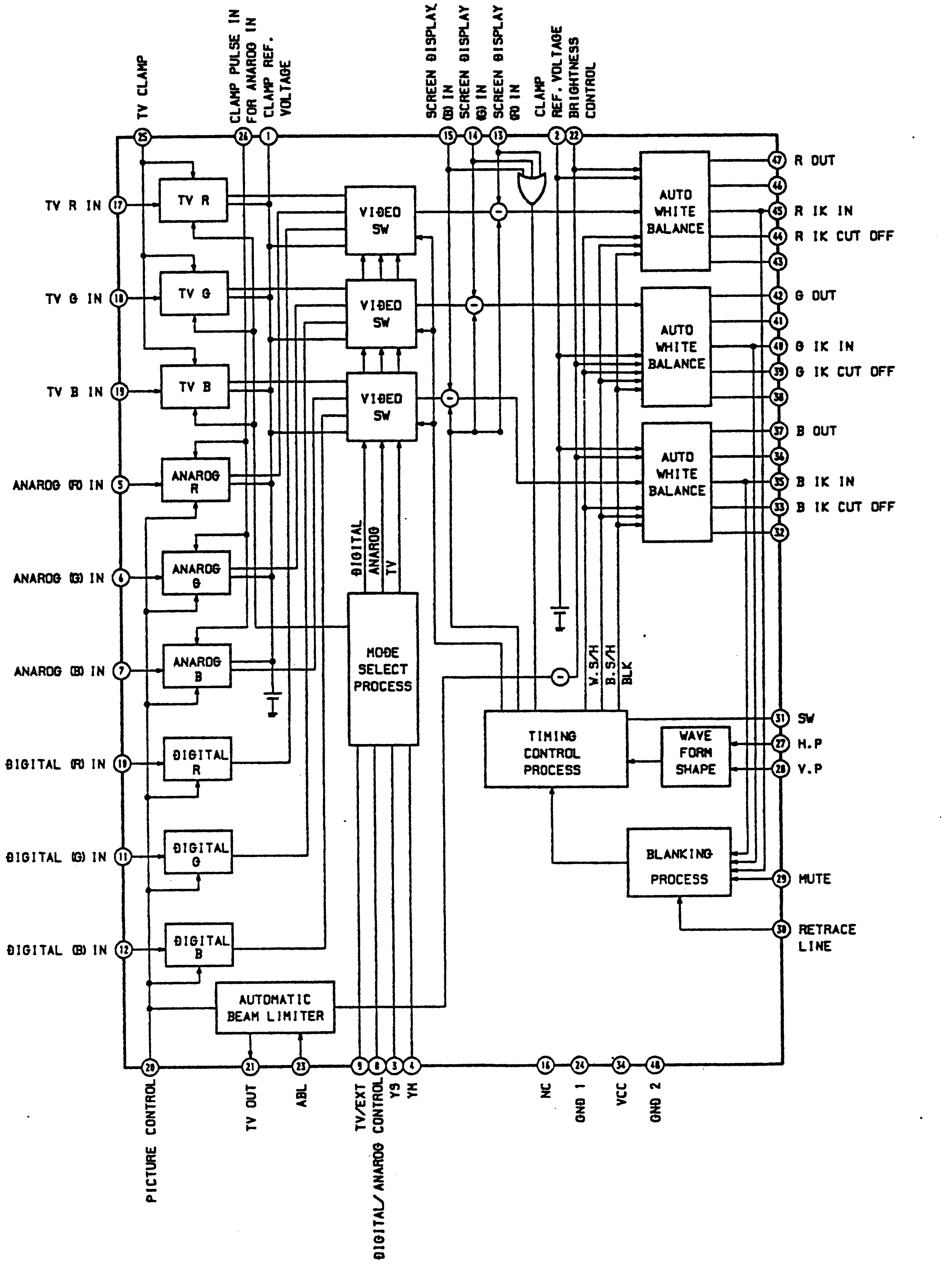
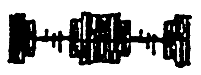
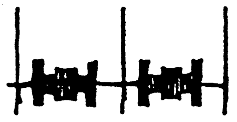
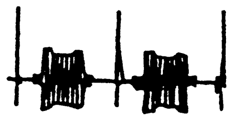
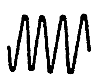
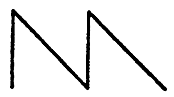
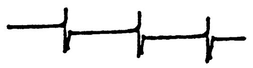
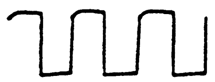
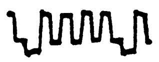
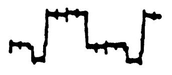
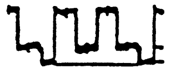
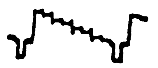
I
J
K
L
M
N
O
P
A1
A2
A3
E1
E2
E3
E4
9V
(9V)
IC304
CXA1024S
RGB-INTREFACE
GND1 TV CLAMP
ABL EXT CLAMP
BRT
H PULSE
TV PIC OUT
V PULSE
EXT PIC MUTE
TV B
BLK
TV G
SW
TV R
BCUT S/H
NC
BIK C/S
VCC
IN B
BIK B
IN G
IN R
BB S/H
RBB
B OUT
GCUT S/H
BIK C/B
BIK G
TV/RGB
IN/B1B
BB
G OUT
IN B
RCUT S/H
IN R
RIK C/S
RIK
S/H
VM
R OUT
VREF2
GND2
VREF1
Q1407
2SB709A
BIAS
Q1406
2SB709A
BIAS
D1402
MA110
:CHIP
CLAMP
D1410
MA110
CLAMP
D1408
MA110
CLAMP
D1409
MA110
CLAMP
D1407
JW
D1405
MTZJ-9.1J
PROTECTOR
D1404
MTZJ-9.1B
PROTECTOE
D1403
MTZJ-9.1B
PROTECTOR
D1406
1SS837
BLK-SW
CN305
5P
WHT
:S-MICRO
1 E
2 9V
3 B
4 G
5 R
TO C BOARD CN703
IC201
BA5412-S
IC203
μPC1406HA
VOL-CONTROL
Q203
2SD601A
MUTE
Q202
2SD601A-R
MUTE
Q201
2SD601A-R
MUTE
D202
DA204K
SW
D201
1SS837
SW
D203
1SS135
D301
MTZJ-T-77
L201
PS201
JW203
5MM
R814
2.2k
3W
<HP BJ-OUT>
<HP 60-OUT>
<VOL>
<HP-GND>
<SP-MUTE>
<AUDIO-IN>
<SIO-GND>
B1
B2
B3
B4
B5
B6
B7
AUDIO
H.PHASE
HD
HP
VCC
HV
GND
IS
115V
+B (12V)
B-SS4714<AEP>-B2.-P2

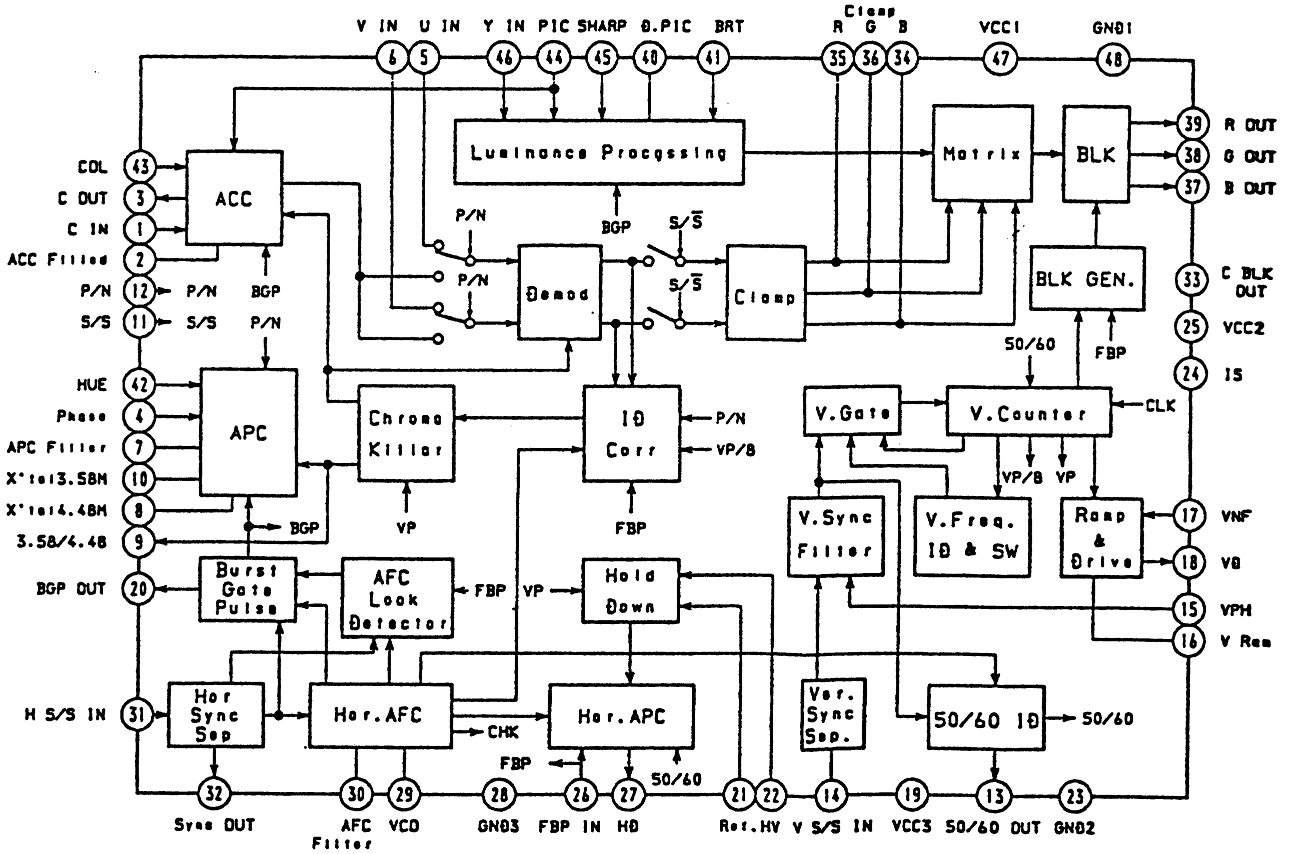
D2 Board IC304 CXA1024S


TV CLAMP
CLAMP PULSE IN FOR ANAROG IN
CLAMP REF. VOLTAGE
SCREEN DISPLAY (B) IN
SCREEN DISPLAY (G) IN
SCREEN DISPLAY (R) IN
CLAMP REF. VOLTAGE
BRIGHTNESS CONTROL
25
26
1
15
14
13
2
22
TV R IN 17
TV G IN 18
TV B IN 19
ANAROG (R) IN 5
ANAROG (G) IN 6
ANAROG (B) IN 7
DIGITAL (R) IN 10
DIGITAL (G) IN 11
DIGITAL (B) IN 12
TV R
TV G
TV B
ANAROG R
ANAROG G
ANAROG B
DIGITAL R
DIGITAL G
DIGITAL B
VIDEO SW
VIDEO SW
VIDEO SW
DIGITAL
ANAROG
TV
MODE SELECT PROCESS
AUTOMATIC BEAM LIMITER
AUTO WHITE BALANCE
AUTO WHITE BALANCE
AUTO WHITE BALANCE
W.S/H
B.S/H
BLK
TIMING CONTROL PROCESS
WAVE FORM SHAPE
BLANKING PROCESS
47 R OUT
46
45 R IK IN
44 R IK CUT OFF
43
42 G OUT
41
40 G IK IN
39 G IK CUT OFF
38
37 B OUT
36
35 B IK IN
33 B IK CUT OFF
32
31 SW
27 H.P
28 V.P
29 MUTE
30 RETRACE LINE
20 PICTURE CONTROL
21 TV OUT
23 ABL
9 TV/EXT
8 DIGITAL/ANAROG CONTROL
3 YS
4 YM
16 NC
24 GND 1
34 VCC
48 GND 2

• D2 BOARD WAVEFORMS (2/2)

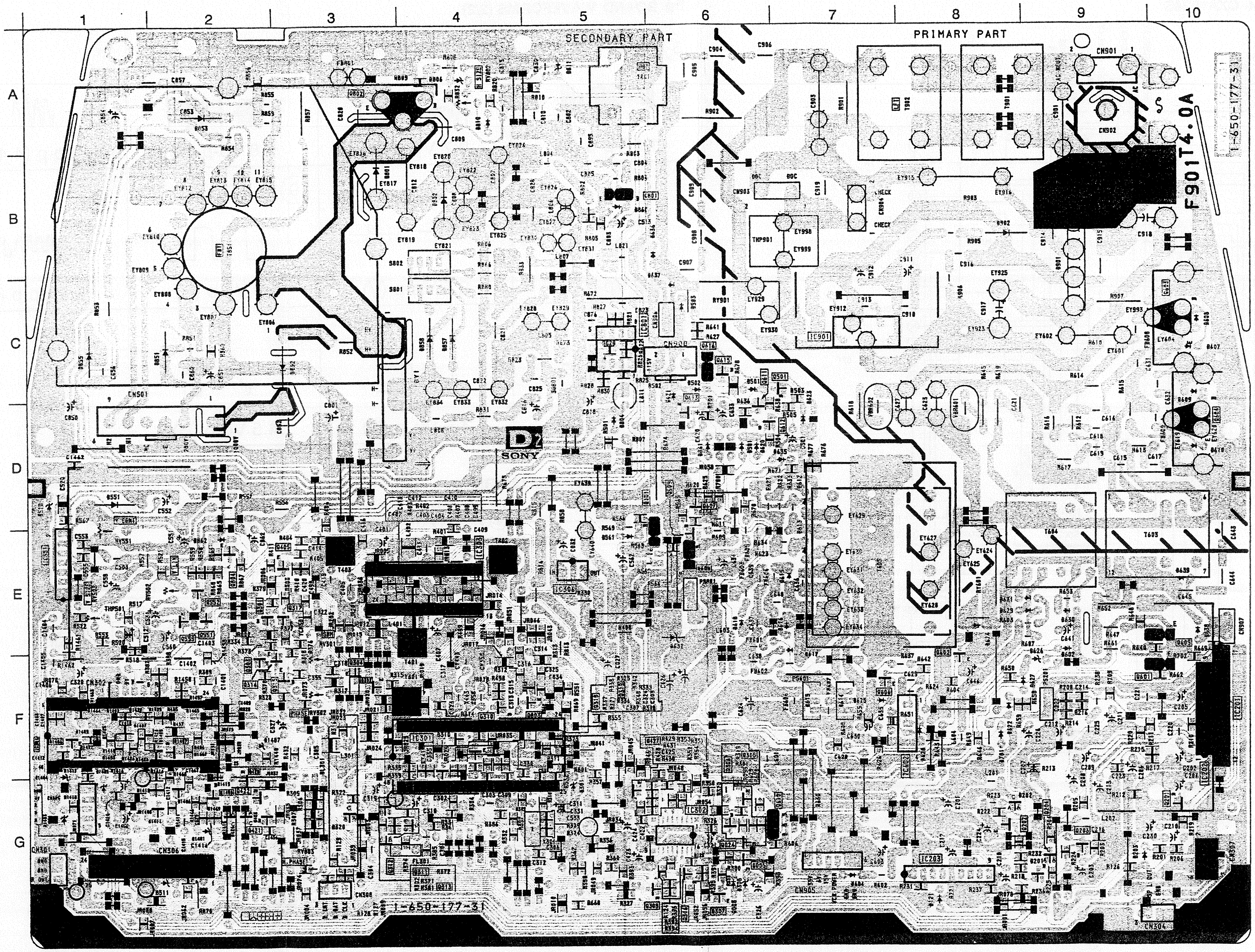
③ PAL  1.1 Vp-p (H)	④ PAL  0.7 Vp-p (H)	⑤ PAL  0.8 Vp-p (H)	⑥  0.21 Vp-p (4.43MHz)
⑦  3.2 Vp-p (V)	⑧  2.5 Vp-p (V)	⑨  3.5 Vp-p (H)	⑩  0.8 Vp-p (H)
⑪  4.5 Vp-p (H)	⑫  4.5 Vp-p (H)	⑬  4.5 Vp-p (H)	

D2 Board IC301 CXA1213BS


V IN 6
U IN 5
Y IN 46
PIC 44
SHARP 45
D.PIC 40
BRT 41
Clamp R G B
35
36
34
VCC1 47
GND1 48
COL 43
C OUT 3
C IN 1
ACC Filter 2
P/N 12
S/S 11
HUE 42
Phase 4
APC Filter 7
X'tal3.58M 10
X'tal4.48M 8
3.58/4.48 9
BGP OUT 20
H S/S IN 31
ACC
APC
Luminance Processing
Matrix
BLK
BLK GEN.
Demod
Clamp
Chroma Killer
ID Corr
V.Gate
V.Counter
V.Sync Filter
V.Freq. ID & SW
Ramp & Drive
Burst Gate Pulse
AFC Look Detector
Hold Down
Hor Sync Sep
Hor.AFC
Hor.APC
Ver. Sync Sep.
50/60 ID
P/N
S/S
BGP
S/S̄
VP
FBP
VP/8
CLK
CHK
50/60
39 R OUT
38 G OUT
37 B OUT
33 C BLK OUT
25 VCC2
24 IS
17 VNF
18 VD
15 VPH
16 V Ram
32 Sync OUT
30 AFC Filter
29 VCO
28 GND3
26 FBP IN
27 HD
21 22 Ref.HV
14 V S/S IN
19 VCC3
13 50/60 OUT
23 GND2

– D2 Board –

D2 TV MAIN PCB
V.OUT, H.OUT
POWER



1
2
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8
9
10
A
B
C
D
E
F
G
SECONDARY PART
PRIMARY PART
CN901
CN902
T901
T902
1-650-177-31
F901T4.0A
SONY
CN501
CN908
IC901
T604
T603
IC203
CN306
CN304
CN905

Schematic diagram

← D2 board (2/2)

Schematic diagram

C board →

- **D2 BOARD**

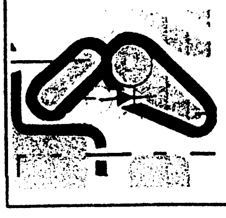
IC	
IC201	D-7
IC203	E-6
IC301	D-3
IC302	E-4
IC304	D-1
IC306	D-3
IC551	C-1
IC602	E-5

TRANSISTOR	
Q024	E-4
Q101	C-4
Q201	E-7
Q202	E-6
Q203	E-6
Q301	D-2
Q302	D-2
Q303	D-2
Q304	D-2
Q305	E-5
Q306	E-4
Q307	E-4
Q309	E-4
Q310	D-3
Q311	E-3
Q313	E-3
Q314	D-2
Q315	D-2
Q316	E-4
Q317	D-2
Q318	D-4
Q319	D-4
Q501	B-5
Q551	D-1
Q552	D-2
Q601	D-7
Q602	D-6
Q603	B-7
Q604	C-7
Q605	D-7
Q606	D-5
Q607	C-4
Q608	D-4
Q609	C-4
Q611	B-5
Q612	C-5
Q613	C-4
Q801	A-4
Q802	A-2
Q803	D-3
Q804	D-2
Q1406	D-1
Q1407	D-1

DIODE	
D121	E-6
D201	E-6
D202	E-6
D203	E-7
D301	E-4
D305	E-4
D310	D-3
D501	C-5
D510	C-1
D511	E-1
D551	C-1
D561	C-4
D581	C-5
D602	D-6
D604	E-5
D607	B-7
D608	B-7
D609	C-7
D610	C-7
D612	C-5
D613	C-5
D614	D-5
D615	D-5
D616	D-5
D617	D-5
D618	D-4
D619	D-5
D620	C-5
D621	C-4
D622	D-6
D623	C-5
D624	D-6
D625	D-5
D626	D-6
D627	D-6
D629	D-6
D630	D-6
D631	D-6
D632	D-5
D635	C-5
D636	B-4
D637	B-4
D701	E-6
D804	C-4
D851	B-1
D852	B-2
D853	A-1
D855	B-1
D857	B-3
D858	B-3
D861	C-4
D862	C-2
D901	B-6
D903	B-4
D1402	D-1
D1404	E-1
D1405	E-1
D1406	D-1
D1407	D-2
D1408	D-1
D1409	D-1
D1410	E-1

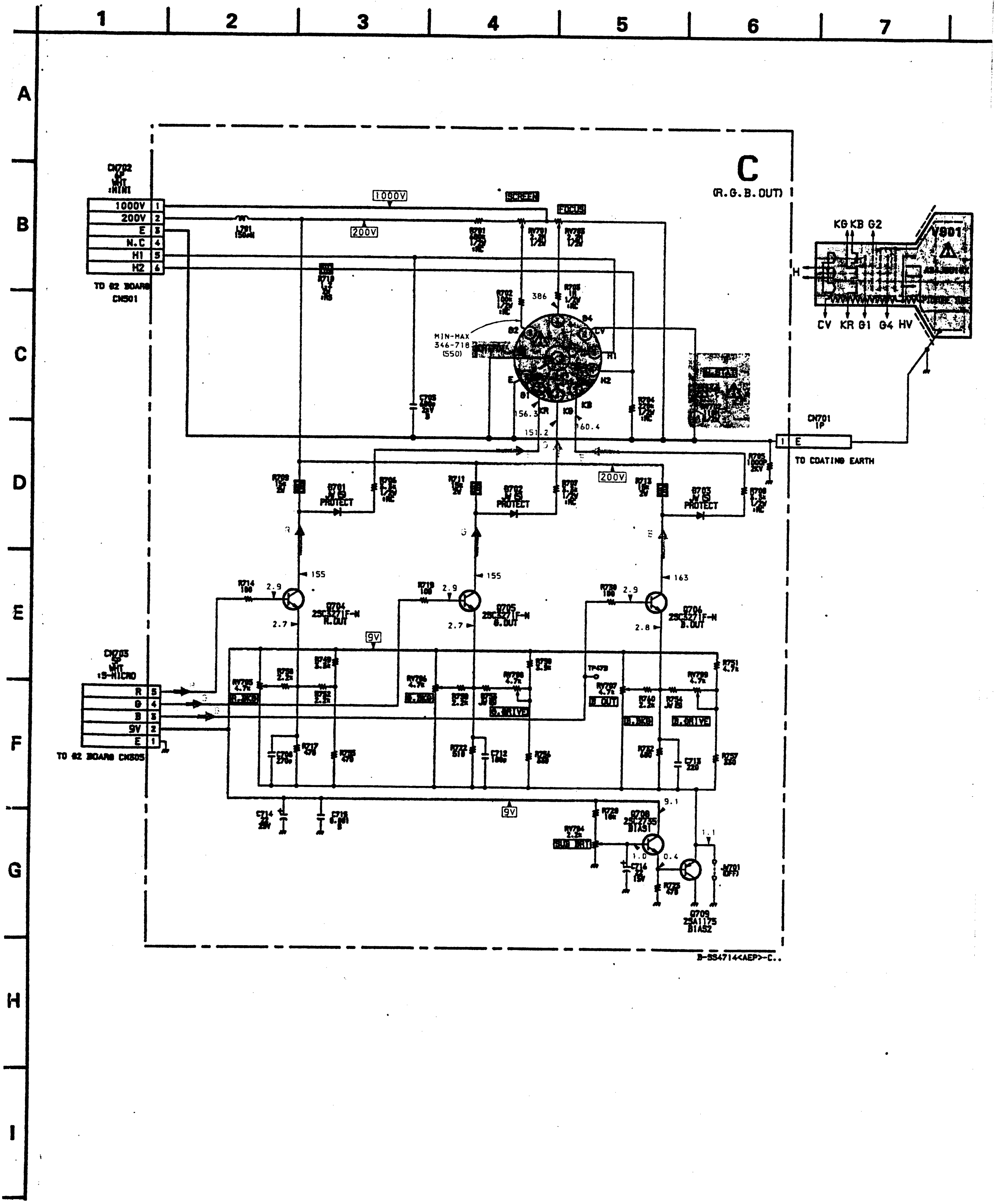
VARIABLE RESISTOR	
RV301	D-2
RV302	D-2
RV502	D-1
RV503	D-1
RV551	C-1
RV803	E-2

CRYSTAL	
X301	E-3
X443	D-3



NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

(3) Schematic Diagram of C Board


1
2
3
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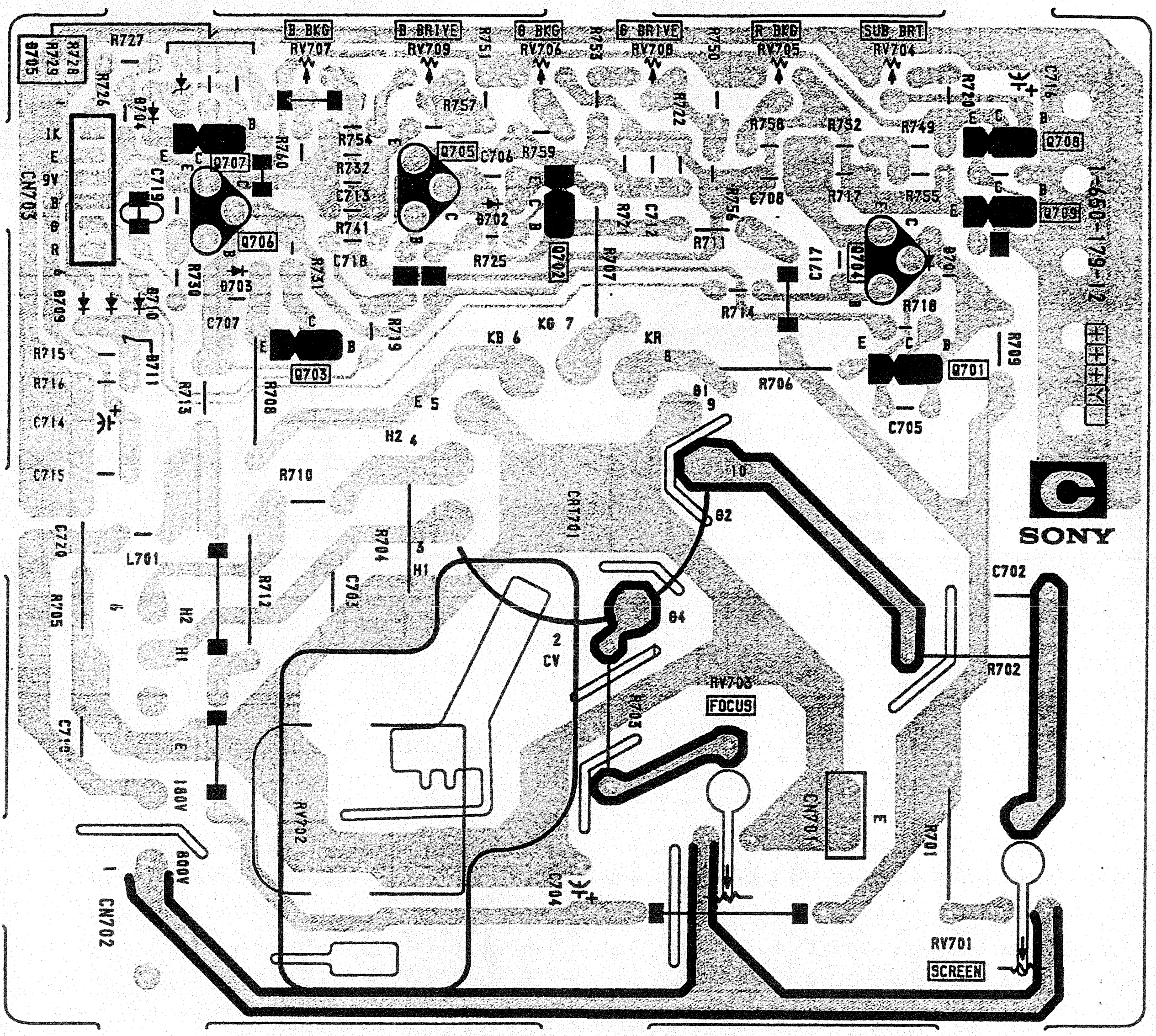
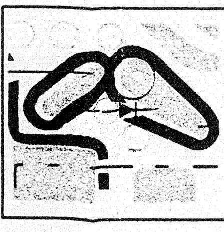
6
7
A
B
C
D
E
F
G
H
I
C
(R.G.B.OUT)
CN702
6P
WHT
:MINI
1000V 1
200V 2
E 3
N.C 4
H1 5
H2 6
TO B2 BOARD CN501
1000V
200V
SCREEN
FOCUS
L701
150mH
R718
1.2
2W
:RS
C705
0.01
2kV
B
MIN-MAX
346-718
(550)
386
G2
G4
CV
H1
H2
E
G1
KR
KG
KB
156.3
151.2
160.4
R705
1000P
2kV
CN701
1P
1 E
TO COATING EARTH
KG KB G2
H
V901
CV KR G1 G4 HV
R709
15k
2W
D701
PROTECT
R711
15k
2W
D702
PROTECT
R713
15k
2W
D703
PROTECT
200V
R
G
B
155
155
163
R714
100
2.9
Q704
2SC3271F-N
R.OUT
2.7
R719
100
2.9
Q705
2SC3271F-N
G.OUT
2.7
R730
100
2.9
Q706
2SC3271F-N
B.OUT
2.8
9V
CN703
5P
WHT
:S-MICRO
R 5
G 4
B 3
9V 2
E 1
TO B2 BOARD CN505
RV705
4.7k
R.BKG
RV706
4.7k
G.BKG
RV708
4.7k
G.DRIVE
TP479
RV707
4.7k
B OUT
RV709
4.7k
B.BKG
B.DRIVE
R751
4.7k
C708
270p
R717
470
R735
470
R722
510
C712
180p
R736
330
R732
680
C713
220
R737
330
C714
22
25V
C715
0.001
B
9V
R720
10k
Q708
2SC2735
BIAS1
RV704
2.2k
SUB BRT
9.1
1.0
0.4
1.1
C716
22
16V
R723
470
S701
(OFF)
Q709
2SA1175
BIAS2
B-SS4714<AEP>-C..

C [R.G.B OUT]

- C Board -


B BKG
RV707
B DRIVE
RV709
G BKG
RV706
G DRIVE
RV708
R BKG
RV705
SUB BRT
RV704
R727
R728
R729
D705
R726
D704
CN703
Q707
Q706
Q705
Q702
Q703
Q704
Q708
Q709
Q701
C719
R730
D703
D709
D710
D711
R715
R716
C714
C715
R713
R708
C707
R740
R754
R732
C713
R741
C718
R731
R757
C706
R759
D702
R725
R719
R751
R753
R722
R721
C712
R707
R750
R756
R758
R752
R749
R720
C716
C708
R717
R755
R711
C717
D701
R714
R718
R709
R706
C705
KB 6
KG 7
KR 8
G1 9
E 5
H2 4
R710
CRT701
G2
10
R704
3
H1
C703
R712
L701
C720
R705
C719
H2
H1
E
180V
800V
CN702
2
CV
G4
RV703
FOCUS
R703
RV702
C704
CN701
R701
C702
R702
RV701
SCREEN
1-650-179-12
SONY



NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

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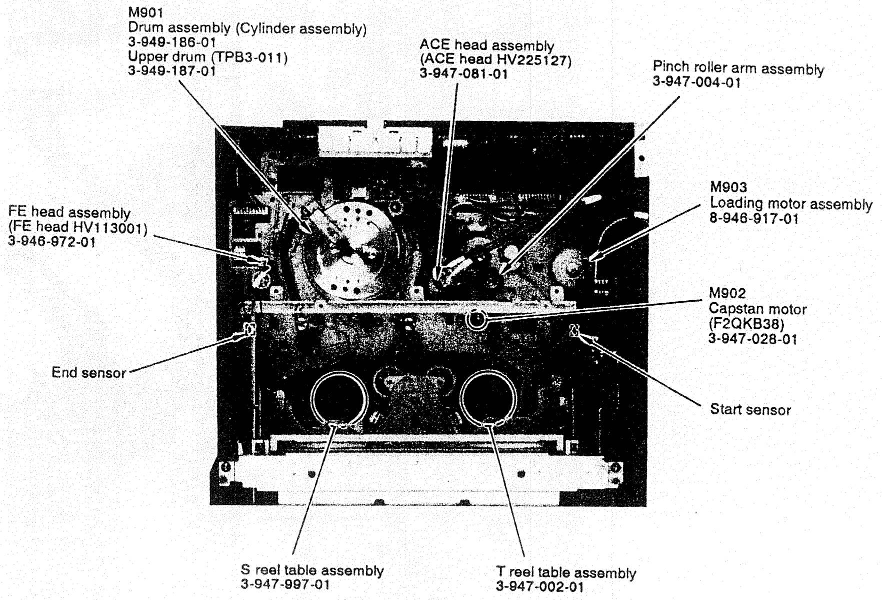
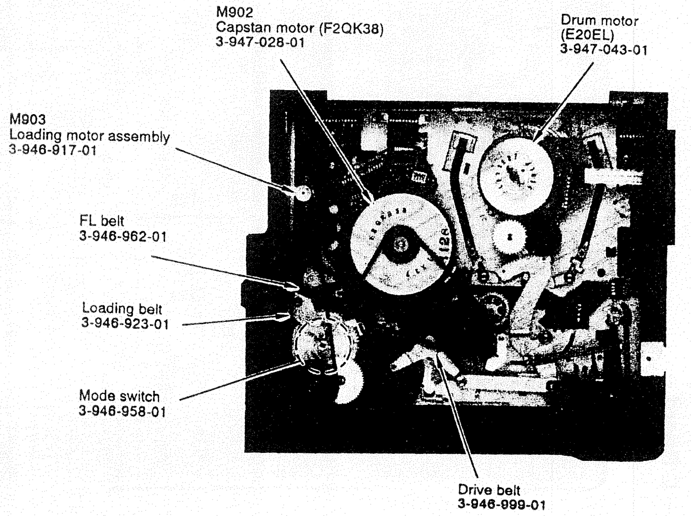
SECTION 1
GENERAL

1-1. INTERNAL VIEWS

– Top Side –

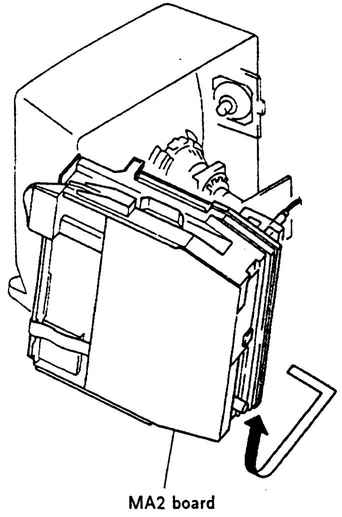

M901
Drum assembly (Cylinder assembly)
3-949-186-01
Upper drum (TPB3-011)
3-949-187-01
ACE head assembly
(ACE head HV225127)
3-947-081-01
Pinch roller arm assembly
3-947-004-01
M903
Loading motor assembly
8-946-917-01
FE head assembly
(FE head HV113001)
3-946-972-01
M902
Capstan motor
(F2QKB38)
3-947-028-01
End sensor
Start sensor
S reel table assembly
3-947-997-01
T reel table assembly
3-947-002-01

– Bottom Side –

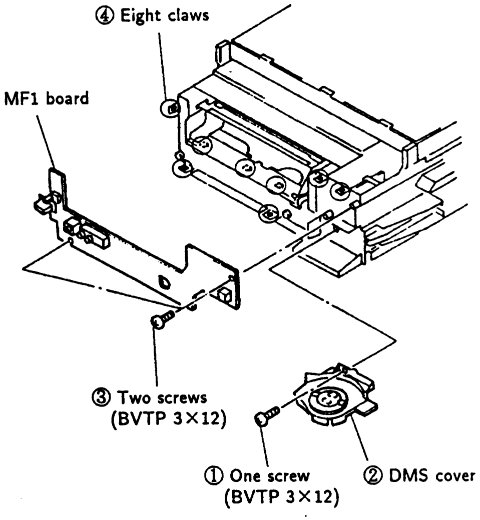

M902
Capstan motor (F2QK38)
3-947-028-01
Drum motor
(E20EL)
3-947-043-01
M903
Loading motor assembly
3-946-917-01
FL belt
3-946-962-01
Loading belt
3-946-923-01
Mode switch
3-946-958-01
Drive belt
3-946-999-01

SECTION 2
DISASSEMBLY

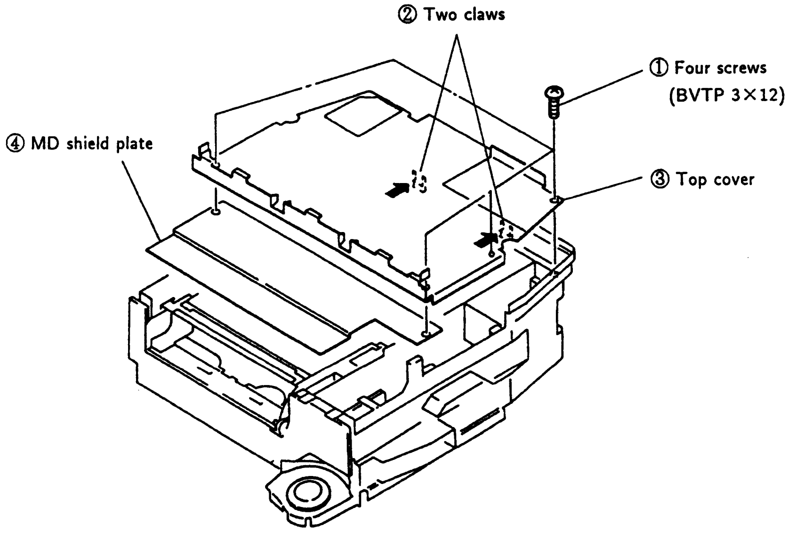
2-1. SERVICE POSITION



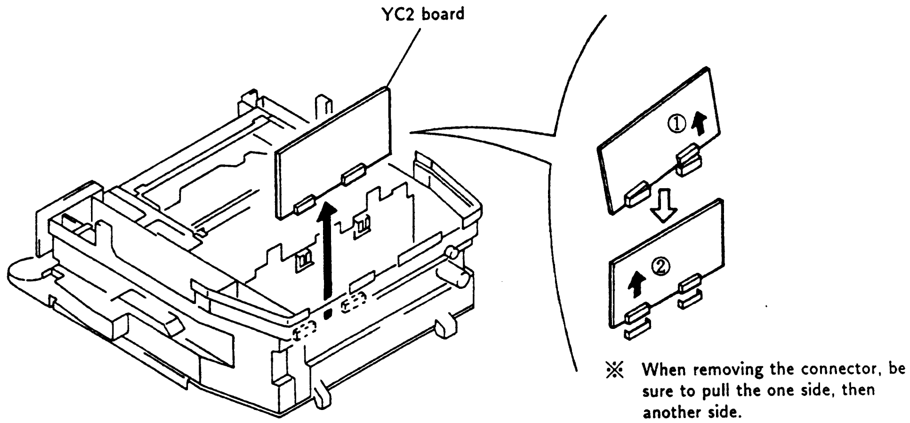
2-2. MF1 BOARD REMOVAL


④ Eight claws
⑤ MF1 board
③ Two screws (BVTP 3×12)
① One screw (BVTP 3×12)
② DMS cover

2-3. TOP COVER AND MD SHIELD PLATE REMOVAL

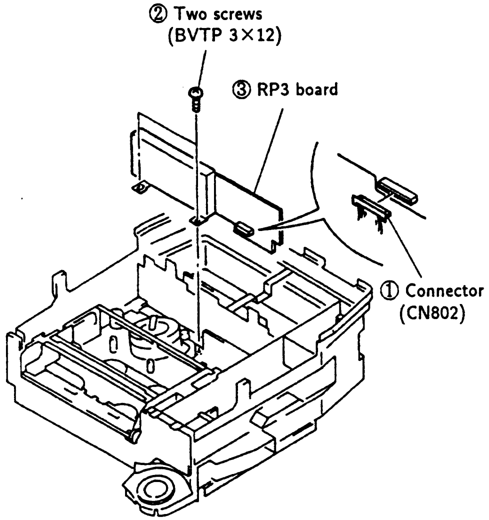

② Two claws
① Four screws (BVTP 3×12)
④ MD shield plate
③ Top cover

2-4. YC2 BOARD REMOVAL

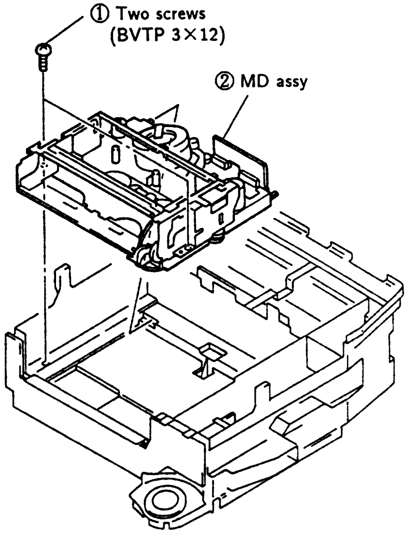

YC2 board
①
②

※ When removing the connector, be sure to pull the one side, then another side.

2-5. RP3 BOARD REMOVAL


② Two screws (BVTP 3×12)
③ RP3 board
① Connector (CN802)

2-6. MD ASSY REMOVAL


① Two screws (BVTP 3×12)
② MD assy

SECTION 3
CIRCUIT ADJUSTMENTS

Necessary items and indications for total adjustment of electric circuit of this unit will be described in this chapter.

[Instruments to be Used]

1) Color TV
2) Single or dual trace type oscilloscope, band more than 30 MHz, delay mode, as provided.
3) Frequency counter (4 digits or more)
4) PAL pattern generater
5) Digital voltmeter
6) Audio level meter
7) Audio generator
8) Attenuator
9) Distortion meter
10) Alignment tape
    Part code : H7099046H (MH-1)

[Connection]

Unless otherwise specified, connect and adjust the measurement equipment as follows.

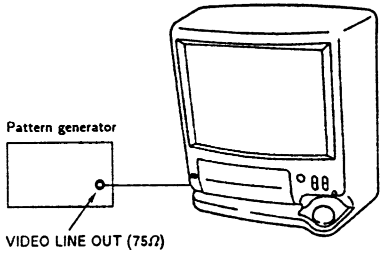


Fig. 3-1.

[Set-up for Adjustment]

The video signal from the pattern generator is used as adjustment signal for electrical adjustment. This video signal should meet the requirement. Connect the oscilloscope to the video input terminal on the MF 1 board and make sure that the amplitudes of sync signal of video signal, video portion and burst signal are flat at approximately 0.3, 0.7 and 0.3V, respectively, and that the level ratio of the burst signal and "red signal"are 0.30 : 0.66, Fig. 7-2. shows video signals (color bars) used in adjusting the electrical adjustment.

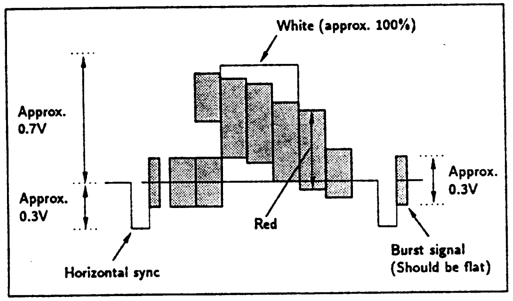


Fig. 3-2. Color bar signal of pattern generator

[Allgnment Tape (MH-1)]

	Mode	Time	Video signal	Audio signal
1	SP	Ten minutes	Stair-step	7 kHz
2		Five minutes	—	3 kHz
3		Ten minutes	Color bar	1 kHz
4		Three minutes	RF sweep	

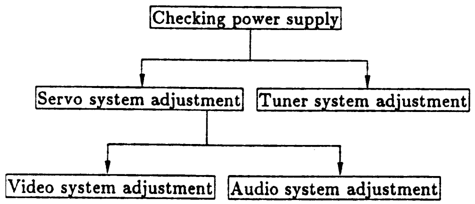
[Specified Input/Output Level Impedance]

Input/Output terminal

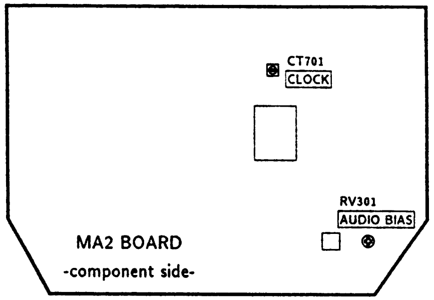
Video input	Pin jack Input signal : 1Vp-p, 75Ω, unbalanced Sync negative
VIDEO LINE OUT	Pin jack Output signal : 1Vp-p, 75Ω, unbalanced Sync negative
AUDIO LINE IN	Pin jack Input level : -7.5dBs (0dBs=0.775Vrms) Input impedance : More than 47kΩ
AUDIO LINE OUT	Pin jack Specified output : -7.5dBs At 47kΩ loaded. Load impedance : More than 10kΩ

[Adjustment Sequence]

Make the electrical adjustment in the following sequences.



3-1. M2 BOARD ADJUSTMENTS



1. CLOCK adjustment

Measurement Point	Pin ㉟ of IC701
Measurement Equipment	Frequency counter
Adjustment Element	CT701
Specified Value	244.1406μsec ± 0.0008μsec

1) Short circuit between pin ㊱ and GND of IC701.
2) Connect the frequency counter to pin ㉟ of IC701.
3) Adjust CT701 for 244.1406μsec ± 0.0008μsec.

2. Recording bias adjustment

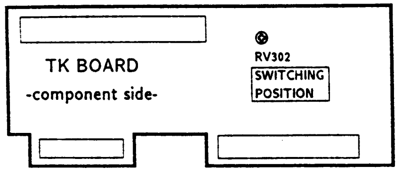
Mode	Recording and playback (SP mode)
Signal	400Hz, -30dBs 7kHz, -30dBs
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter
Adjustment Element	RV301
Specified Value	0 ± 2dB

Note : Tape path adustment should have been completed.

Adjustment Method :

1) Input signal of 400 Hz, -30dBs.
2) Make recording.
3) Set the AUDIO LINE IN signal to 7kHz, -30dBs and make recording.
4) Playback a recorded portion and measure output levels at 400Hz and 7kHz.
5) Confirm that the 7kHz playback signal level is within a range of 0±2dB against the 400Hz playback signal level. When beyond this range, adjust RV301 and repeat the steps (1) through (5).

3-2. TK BOARD ADJUSTMENT



SERVO SYSTEM ADJUSTMENT

1. Switching position adjustment (TK board)

Mode	Playback
Signal	Alignment tape, Stair step
Measurement Point	CH1:Pin ⑤ of CN402 (MA2) CH2:Pin ⑤ of CN401 (MA2)
Measurement Equipment	Oscilloscope
Adjustment Element	RV302
Specified Value	416 ± 32μsec (6.5± 0.5H)

Adjustment Method :

1) Press the tracking buttons ▼ and ▲ at a time.
2) Adjust for 416 ± 32μsec (6.5± 0.5) using RV302.

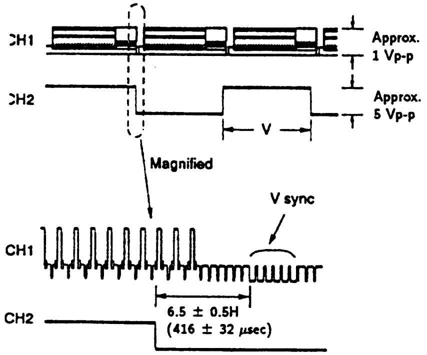
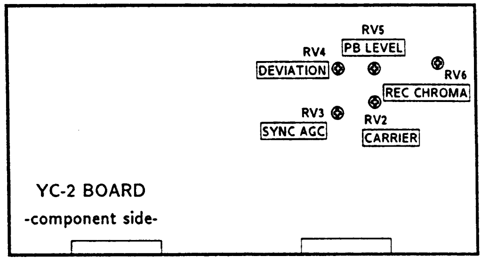


Fig. 3-3. Switching position adjustment

3-3. YC-2 BOARD ADJUSTMENTS



Adjust the video system in the following sequences as a rule. The color video signal supplied from the pattern generator is used as a video input signal for video system adjustment in the recording mode. Make sure that sync and color burst signals meet requirements specified at set up of adjustment shown in Fig 3-2.

[Adjustment Sequences]

1) Crystal oscillation frequency confirmation
2) Playback Y signal level adjustment
3) Sync AGC adjustment
4) Sync tip carrier set and deviation adjustment
5) Recording chroma signal level adjustment
6) Y signal recording level check
7) SECAM detector adjustment

1. Crystal oscillation frequency confirmation (YC-2 board)

Mode	Playback
Signal	Any tape
Measurement Point	Pin ㉑ of IC001
Measurement Equipment	Frequency counter, Oscilloscope
Specified Value	8.867238MHz ± 120Hz (PAL)

Note : Connect the frequency counter through a buffer amplifier (oscilloscope, etc.) of high input impedance (1 MΩ or more) and low capacity (10 pF or less).

Confirmation Method :

1) Make sure that the frequency is 8.867238MHz ± 120 Hz.
2) Make sure that the amplitude is 0.6 ± 0.1 Vp-p.

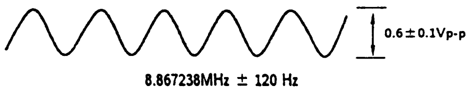


Fig. 3-4.

2. Playback Y signal level adjustment (YC-2 board)

Mode	Playback
Signal	Alignment tape, color bar
Measurement Point	VIDEO OUT
Measurement Equipment	Oscilloscope
Adjustment Element	RV005
Specified Value	1.00 ± 0.05 Vp-p

Note : Make this adjustment RENTAL PICTURE OFF condition.

Adjustment Method :

1) Adjust for 1.00 ± 0.05 Vp-p using RV005.

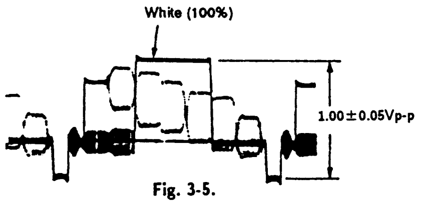


Fig. 3-5.

3. Sync AGC adjustment (YC-2 board)

Mode	Recording or EE
Signal	Color bar
Measurement Point	VIDEO OUT
Measurement Equipment	Oscilloscope
Adjustment Element	RV003
Specified Value	1.00 ± 0.05 Vp-p

Adjustment Method :

1) Adjust for 1.00 ± 0.05 Vp-p using RV003.

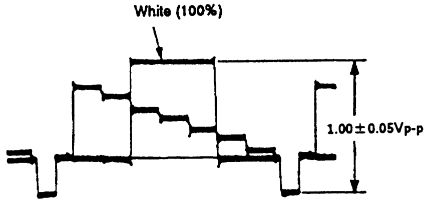


Fig. 3-6.

4. Sync tip carrier set and deviation adjustment (YC-2 board)

Before starting this adjustment, be sure to check that "2. playback Y signal level adjustment" has been completed.

Sync tip carrier set adjustment	
Mode	E-E
Signal	No signal
Measurement Point	Pin ⑩ of CN001 (REC Y)
Measurement Equipment	Frequency counter, Spectrum
Adjustment Element	RV002
Specified Value	3.80 ± 0.05 MHz
Deviation adjustment	
Mode	Recording and playback
Signal	Color bar
Measurement Point	VIDEO OUT
Measurement Equipment	Oscilloscope
Adjustment Element	RV004
Specified Value	1.00 ± 0.05 Vp-p

Note : Make this adjustment RENTAL PICTURE OFF condition

Adjustment Method :

1) Make no signal state and select the E-E mode.
2) Connect the frequency counter to the Pin ⑩ of CN 001 and adjust for 3.80 ± 0.05 MHz using RV002.
3) Input the color bar signal to make recording.
4) Playback the recorded tape portion and check the playback Y signal level of the VIDEO OUT. Specification : Should be 1.00 ± 0.05 Vp-p.
5) If does not meet the specification, repeat 1) to 4) after adjusting RV004.

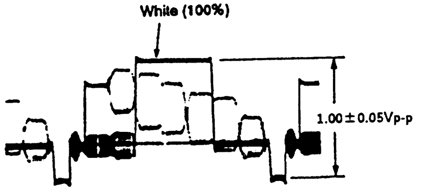


Fig. 3-7.

5. Recording chroma signal level adjustment (YC-2 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ① of CN001 (REC C)
Measurement Equipment	Oscilloscope
Adjustment Element	RV006
Specified Value	110 ± 5 mVp-p

Adjustment Method :

1) Adjust the color bar "red" level to 110 ± 5 mVp-p using RV006.

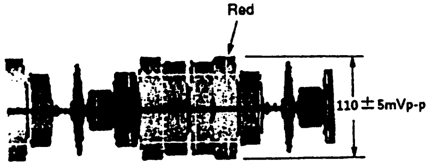


Fig. 3-8.

6. Y signal recording level adjustment (YC-2 board)

Mode	E-E
Signal	No signal
Measurement Point	Pin ⑩ of CN001 (Y REC)
Measurement Equipment	Oscilloscope
Specified Value	340 ± 40 mVp-p

Adjustment Method :

1) Confirm that the REC Y level is 340 ± 40 mVp-p.

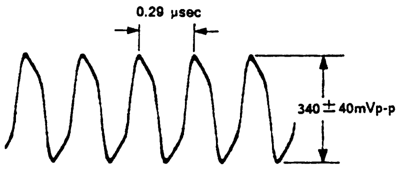


Fig. 3-9.

3-4. AUDIO SYSTEM ADJUSTMENTS

[Connection]

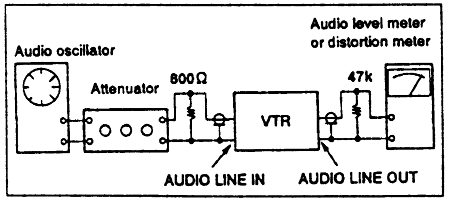


Fig. 3-10.

- Make adjustment in the SP mode.

[Adjustment Sequences]

1) ACE head adjustment
   ... See "VHS MECHANICAL ADJUSTMENT MANUAL Ⅲ".
2) Playback output level check
3) E-E output level check
4) Recording bias adjustment
5) Overall level characteristic and distortion factor check.
6) Overall S/N check

1. ACE head adjustment

See "VHS MECHANICAL ADJUSTMENT MANUAL Ⅲ".

2. Playback output level check

Mode	Playback
Signal	Alignment tape, 1 kHz (color bar) portion
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter
Specified Value	-7.5 ± 2dBs

Confirmation Method :

1) Playback 1kHz portion and make sure that AUDIO LINE OUT signal level is -7.5 ± 2dBs.

3. E-E output level check

Mode	E-E
Signal	400Hz, -7.5 dBs
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter
Specified Value	-7.5 ± 3dBs

Confirmation Method :

1) Input signal of 400 Hz, -7.5 dBs to AUDIO LINE IN.
2) Make sure that AUDIO LINE OUT signal level is -7.5 ± 3dBs.

4. Overall level characteristic and distortion factor check

Mode	Recording and playback (SP mode)
Signal	400Hz, -7.5dBs
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter and distortion meter
Specified Value	Playback level : -7.5 ± 3dBs Distortion factor : 4% or less

Confirmation Method :

1) Input audio signal of 400Hz, -7.5 dBs to AUDIO LINE IN.
2) Make recording.
3) Playback the recorded portion.
4) Make sure that playback level is -7.5 ± 3dBs.
5) Make sure that distortion factor is within 4%.

5. Over S/N check

Mode	Recording and playback (SP mode)
Signal	No signal
Measurement Point	AUDIO LINE OUT terminal
Measurement Equipment	Audio level meter
Specified Value	Less than -42 dBs

Confirmation Method :

1) Make no signal input.
2) Make recording.
3) Playback the recorded portion.
4) Confirm that the noise level is less than -42 dBs.

SECTION 4

SYSTEM CONTROL INTERFACE

4-1. SERVO/SYSTEM CONTROL–MICROPROCESSOR TERMINAL FUNCTION (MA2 BOARD IC501)

Pin. No.	Port	I/O	Name	Function
1	PB5/PPO13	O	RF SWP	Video switching pulse output.
2	PB4/PPO12	O	Q VD	Quasi VD pulse output.
3	PB3/PPO11	O	Q HD ENABLE	Quasi HD control.
4	PB2	O	AF REC	Not used.
5	PB1	O	REC P	"H" output when video REC (REC control).
6	PB0	O	REC	"H" output when REC.
7	PC7	O	REC CTL	REC CTL output.
8	PC6	O	INT VD	Not used.
9	PC5	O	PB	"H" when normal audio playback.
10	PC4	O	$\overline{SP}$	"L" when SP mode.
11	PC3	O	LP	"H" when LP mode.
12	PC2	O	Env GAIN	"H" when LP mode.
13	PC1	O	$\overline{JOG}$	"L" when special playback.
14	PC0	O	STEP PLS	STEP PLS Out put.
15	PJ7	O	SYSTEM 2	Not used.
16	PJ6	O	$\overline{H\ DET}$	
17	PJ5	O	NTSC PB	"H" when NTSC playback.
18	PJ4	O	Edit	"H" when Edit.
19	PJ3	O	S Reel FG	S Reel sensor input. TSC, "L" when special playback on PAL-M.
20	PJ2	O	T Reel FG	T Reel sensor input.
21	PJ1	O	RENTAL	"H" when RENTAL PICTURE.
22	PJ0	O	AMS	Not used.
23	PD7	I	C-OUT	Cassette switch input.
24	PD6	I	C-START	
25	PD5	I	C-IN	
26	PD4	I	REC SAF	Erasing protection tab detection.
27	PD3	O	E TAPE	"H" when E TAPE mode.
28	PD2	O	$\overline{TV}$/VTR	Not used.
29	PD1	O	LINE SEL 1	Not used.
30	PD0	O	LINE SEL 2	Not used.
31	PH7	O	TA MUTE	Not used.
32	PH6	O	PAL	
33	PH5	O	AMS Mute	
34	PH4	O	ORC ON	
35	PH3	O	CAP TRQ 1	Current drive capstan motor control.
36	PH2	O	CAP TRQ 2	
37	PH1	O	LAMP	End sensor lamp drive output.
38	PH0	O	$\overline{CAP\ STOP}$	Capstan STOP signal output.
39	MP	I	MP	Fixed "L" level.
40	$\overline{RST}$	I	$\overline{COSMO\ RST}$	System reset input.
41	Vss		Vss	GND
42	XTAL	O	XTAL	System clock 12 MHz.
43	EXTAL	I	EXTAL	
44	$\overline{CS0}$	O	$\overline{COSMO\ CS}$	Chip select signal.
45	SI0	I	S IN	Signal for serial communication.
46	SO0	O	S OUT 0	Signal for serial communication.
47	$\overline{SCK0}$	O	$\overline{SCLK\ 0}$	Clock for serial communication.
48	PF7/AN11	I	K Mode	Not used.
49	PF6/AN10	O	AFT UP	Not used.
50	PF5/AN9	I	DEST	Destination selection.
51	PF4/AN8	I	AF SW POSI	Not used.
52	AVss		AVss	UNSW GND.
53	AVREF		AVREF	AD port reference input. UNSW 5V.
54	AVDD		AVDD	UNSW 5V.
55	PF3/AF7	I	MODE4	Mechanism section CAM encoder input.
56	PF2/AN6	I	MODE3	
57	PF1/AN5	I	MODE2	
58	PF0/AN4	I	MODE1	
59	AN3	I	DEW	DEW sensor analog input.
60	AN2	I	VIDEO RF	Video RF envelope input.
61	AN1	I	AF ENV	Not used.
62	AN0	I	SW POSI	VR input for RF SWP adjustment.
63	PG7	I	T SENSOR	Take-up side end sensor input.
64	PG6	I	S SENSOR	Supply side end sensor input.
65	PG5	I	N.C.	Not used.
66	PG4/SYNC	I	V SYNC	Composite sync input.
67	PG3/$\overline{PBCTL}$	I	$\overline{PB\ CTL}$	Playback CTL input
68	PG2/DPG	I	DRM PG	Drum PG input.
69	PG1/DFG	I	DRM FG	Drum FG input.
70	PG0/CFG	I	CAP FG	Capstan FG input.
71	PE7	O	STEP PULS	"L" when capstan STEP is driven.
72	PE6	O	CAP RVS	Capstan reverse signal output.
73	PE5	O	CAP DA	Capstan error D/A output.
74	PE4	O	DRUM DA	Drum error D/A output.
75	PE3	O	MEM CS	EEPROM chip select.
76	PE2	O	STEP DRIVE	CTL amp step action control.
77	PE1	I	VD CTL	Playback CTL input.
78	PE0		N.C.	Not used.
79	SI1	I	AFT Dwn	
80	SO1	O	S OUT 1	
81	$\overline{SCK1}$		$\overline{SCK\ 1}$	
82	PI4	O	AFT UP	Not uesd.
83	PI3	O	$\overline{HIFI}$	Not used.
84	PI2/$\overline{\ }$PWM	O	STEREO	Not used.
85	PI1/RMC	O	HEAD CONT	Head amp IC control.
86	TEX	I	N.C.	Not used.
87	TX		N.C.	Not used.
88	Vss		Vss	GND
89	VDD		VDD	UNSW 5V.
90	N.C.		N.C.	Not used.

Pin. No.	Port	I/O	Name	Function
91	PA7	O	LOAD (–)	Loading motor control.
92	PA6	O	LOAD (+)	
93	PA5	O	A PB/REC	Normal audio bias oscillation ON/OFF.
94	PA4	O	A PB	"H" when audio playback.
95	PA3	O	A MUTE	Audio muting output. "H": muting.
96	PA2	O	$\overline{\text{V-PB}}$	"L" when video playback.
97	PA1	O	OSD Black	Not used.
98	PA0	O	CTL INDEX	Not used.
99	PB7	O	AF PB	Not used.
100	PB6/PPO14	I	AF SWP	Not used.

4-2. SYSTEM CONTROL–VIDEO BLOCK INTERFACE (MA2 BOARD IC501)

Signal	Pin. No.	I/O	STOP/ FF/ REW	TAPE LOADING	TAPE UN-LOAD-ING	PB	PB·PAUSE	SLOW	× 2	CUE	REVIEW	REC	REC·PAUSE
$\overline{\text{V-PB}}$	MA2 Board IC501 (55)	O	H	H	H	L	L	L	L	L	L	H	H
HEAD CONT	MA2 Board IC501 (85)	O	L	L	L	L	H	*1	H	L	L	H	L
RF SW P.	MA2 Board IC501 ①	O	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
Q VD	MA2 Board IC501 ②	O	L	L	L	*3	*4	*4	*4	*4	*4	L	L
$\overline{\text{SP}}$	MA2 Board IC501 ⑩	O	*5	*5	*5	*6	*6	*6	*6	*6	*6	*5	*5
LP	MA2 Board IC501 ⑪	O	*5	*5	*5	*6	*6	*6	*6	*6	*6	*5	*5
REC. P	MA2 Board IC501 ⑤	O	L	L	L	L	L	L	L	L	L	L	H
REC	MA2 Board IC501 ⑥	O	L	L	L	L	L	L	L	L	L	H	H
V SYNC	MA2 Board IC501 (86)	I	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7

*1. "H" when tape stops. "L" when tape runs (approx. for 40 msec).
*2. Synchronized with drum rotation. 30 Hz 50% duty pulse.
*3. Normally "L". "H" when video signal is not generated.
*4. V period "H" pulse.
*5. Selected by SP/EP. SP mode: "L", EP mode: "H".
*6. Selected by tape recording mode.

sig/mod	SP	LP
SP (10)	L	H
LP (11)	L	H

*7. Composite sync signal (positive).
*8. "H" when menu screen or blue back screen.

4-3. SYSTEM CONTROL-SERVO PERIPHERAL CIRCUT INTERFACE (MA2 BOARD IC501)

Signal	Pin. No.	I/O	STOP	FF	REW	TAPE THREAD-ING	TAPE UN-THREAD-ING	PB	PB-PAUSE	SLOW	x 2	CUE	REVIEW	REC	REC-PAUSE
REC CTL	MA2 Board IC501 ⑦	O	*14	*14	*14	*14	*14	*14	*14	*14	*14	*14	*14	*1	*14
STEP PLS	MA2 Board IC501 ⑭	O	L	*2	*2	*2	*2	*2	L	*3	*2	*2	*2	*2	L
SW POSITION *4	MA2 Board IC501 (62)	I													
$\overline{\text{PB CTL}}$	MA2 Board IC501 (67)	I	H	*5	*5			*1	H/L	*3	*5	*5	*5	*1	H
VD CTL	MA2 Board IC501 (77)	I	H	*5	*5			*1	H/L	*3	*5	*5	*5	*1	H
DRUM PG	MA2 Board IC501 (68)	I	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
DRUM FG	MA2 Board IC501 (69)	I	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
CAP FG	MA2 Board IC501 (70)	I	H/L	*8	*8	*9	*9	*8	H/L	*10	*8	*8	*8	*8	H/L
CAP RVS	MA2 Board IC501 (72)	O	H/L	L	H	L	H	L	L	*3	L	L	H	L	L
CAP DA *14	MA2 Board IC501 (73)	O	*11	*11	*11	*11	*11	*12	*11	*11	*12	*12	*12	*12	*11
DRUM DA *14	MA2 Board IC501 (74)	O	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13
STEP DRIVE	MA2 Board IC501 (76)	O	L	L	L	L	L	L	L	*15	L	L	L	L	L

*1. 30 Hz pulse.
*2. 3 value output of "H", "L" and Hi-Z (2.5V).
*3. Unstable period Pulse.
*4. Input terminal for video switching position adjustment.
*5. Pulse of period in proportion to tape speed.
*6. 30 Hz "H" pulse.
*7. 720 Hz pulse.
*8. Pulse of period in proportion to tape speed.
*9. Unstable period pulse.
*10. Pulse at tape running.
*11. Approx. 2 msec period "H" or "L" pulse.
*12. Approx. 1.5 msec period "H" or "L" pulse.
*13. Approx. 3 msec period "H" or "L" pulse.
*14. HI-Z (2.5V).
*15. "H" when FWD direction and STEP drive.

4-4. SYSTEM CONTROL–MECHANISM BLOCK INTERFACE (MA2 BOARD IC501)

Signal	Pin. No.	I/O	EJECTED	CASSETTE LOADING	CASSETTE UNLOAD-ING	TAPE THREAD-ING	TAPE UN-THREAD-ING	STOP	FF	REW	PB	PB-PAUSE	SLOW	× 2	CUE	REVIEW	REC	REC-PAUSE
LOAD (-)	MA2 Board IC501 (91)	O	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L
LOAD (+)	MA2 Board IC501 (92)	O	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L
MODE 1	MA2 Board IC501 (58)	I	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H
MODE 2	MA2 Board IC501 (57)	I	L	H	L	L	H	L	L	L	L	H	H	L	L	L	L	H
MODE 3	MA2 Board IC501 (56)	I	H	H	H	L	H	H	H	H	L	L	L	L	L	L	L	L
MODE 4	MA2 Board IC501 (54)	I	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
C-OUT	MA2 Board IC501 ㉓	I	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
C-START	MA2 Board IC501 ㉔	I	H	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H
C-IN	MA2 Board IC501 ㉕	I	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L
REC SAF	MA2 Board IC501 ㉖	I	L	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
T REEL	MA2 Board IC501 ⑳	I	H/L	H/L	H/L	H/L	H/L	H/L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
S REEL	MA2 Board IC501 ⑲	I	H/L	H/L	H/L	*2	*2	H/L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
LAMP	MA2 Board IC501 ㊲	O	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
CAP TRQ1	MA2 Board IC501 ㉟	O	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
CAP TRQ2	MA2 Board IC501 ㊱	O	H	H	H	H	H	H	H	H	H	H	*4	H	H	H	H	H
$\overline{\text{CAP STOP}}$	MA2 Board IC501 ㊳	O	L	*5	*5	*5	*5	L	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
T SENS	MA2 Board IC501 (63)	I	*3	*3	*3	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
S SENS	MA2 Board IC501 (64)	I	*3	*3	*3	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6

*1. "L" when erasing protection tab is bent. "H" when not bent.
*2. Pulse of period in proportion to reel rotating speed.
*3. Approx. 2 msec period "H" pulse.
*4. Pulse.
*5. 3 value output of "H", "L" and "HIZ (2.5V)".
*6. Normally "L". 2 msec period "H" pulse when tape top or tape end is detected.

4-5. SYSTEM CONTROL–SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE (MA2 BOARD IC501)

Signal	Pin. No.	I/O	I/O level
COSMO•RESET	MA2 Board IC501 ㊵	I	Normally "H". "L" when service interruption is detected or restored.
COSMO•CS	MA2 Board IC501 ㊹	I	Chip select signal from timer microprocessor. V period "L" pulse.
SI•BUS	MA2 Board IC501 ㊺	I	Serial communication data to timer microprocessor. V period "L" pulse.
SO•BUS	MA2 Board IC501 ㊻	O	Serial communication data to timer microprocessor. V period "L" pulse.
S CLK	MA2 Board IC501 ㊼	I	Serial communication clock with timer microprocessor. V period "L" pulse.

4-6. SYSTEM CONTROL–AUDIO BLOCK INTERFACE (MA2 BOARD IC501)

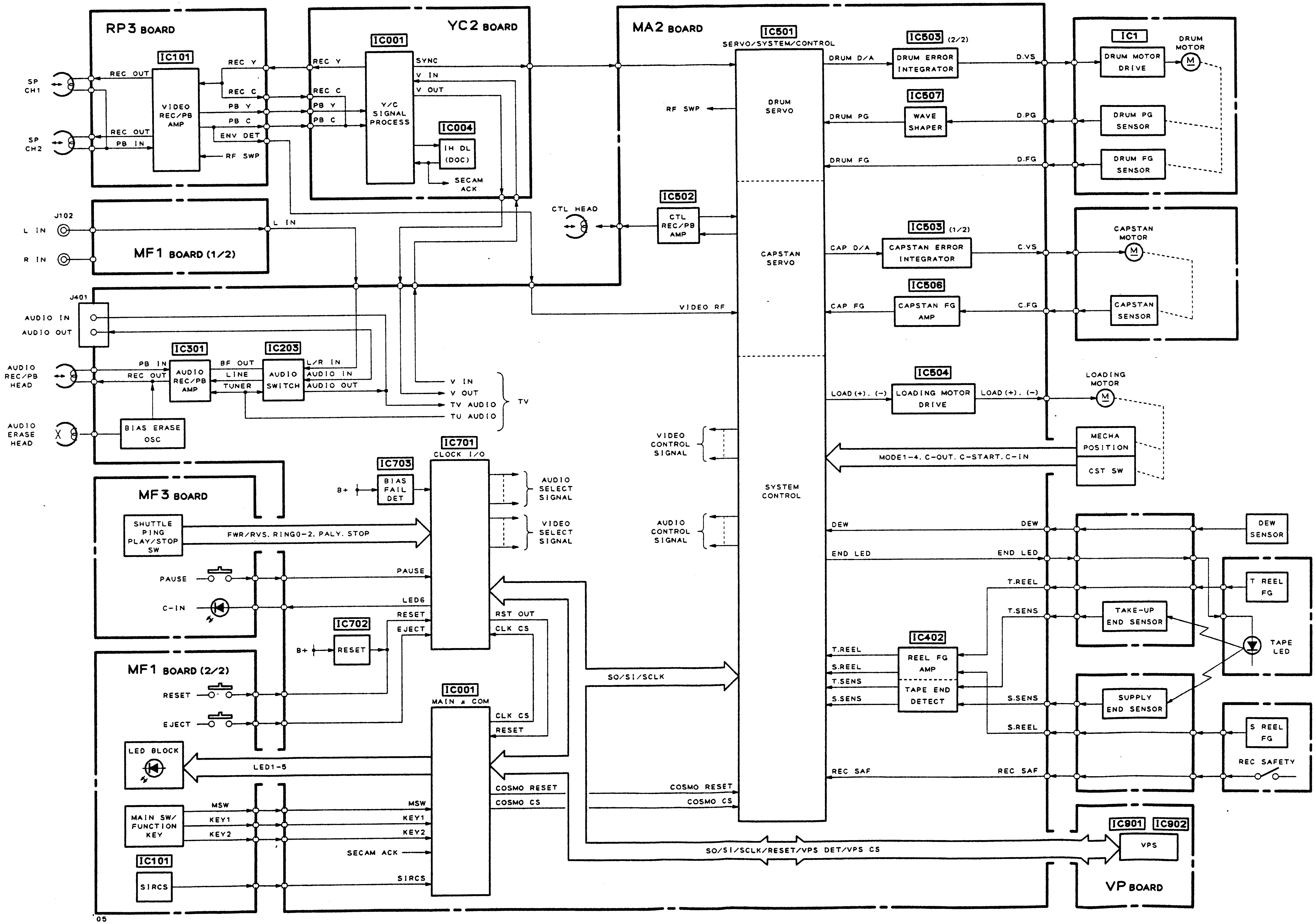
Signal	Pin. No.	I/O	STOP/ FF/ REW	TAPE LOADING	TAPE UN-LOAD-ING	PB	PB• PAUSE	SLOW	× 2	CUE	REVIEW	REC	REC• PAUSE
A PB	MA2 Board IC501 (54)	O	L	L	L	H	H	H	H	H	H	L	L
A MUTE	MA2 Board IC501 (55)	O	L	L	L	L	H	H	H	H	H	L	L
A PB/REC	MA2 Board IC501 (53)	O	L	L	L	L	L	L	L	L	L	H	L
$\overline{SP}$	MA2 Board IC501 ⑩	O	*1	*1	*1	*2	*2	*2	*2	*2	*2	*1	*1

*1. Selected by SP/EP selector. SP mode: "L", EP mode: "H".

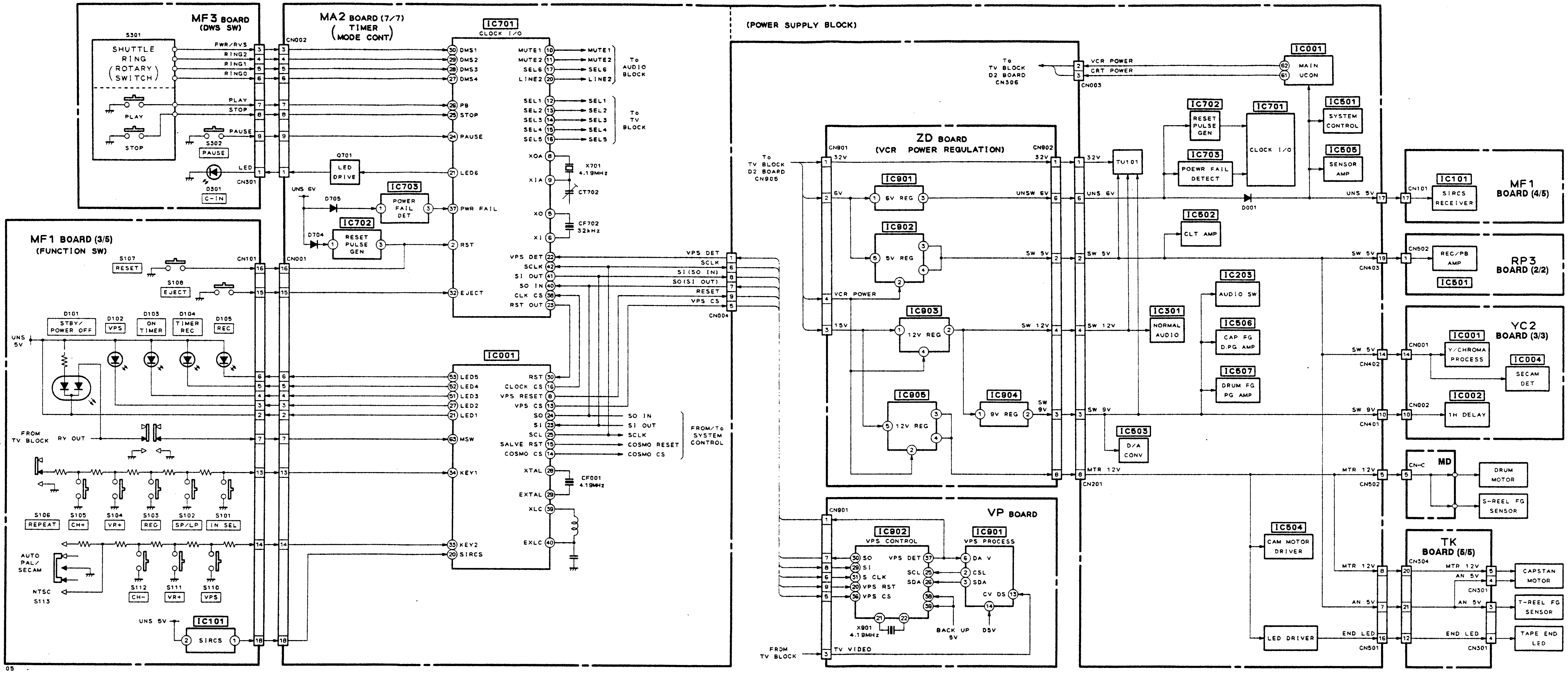
*2. Selected by tape recording mode. SP mode: "L", EP mode: "H".

SECTION 5
DIAGRAMS

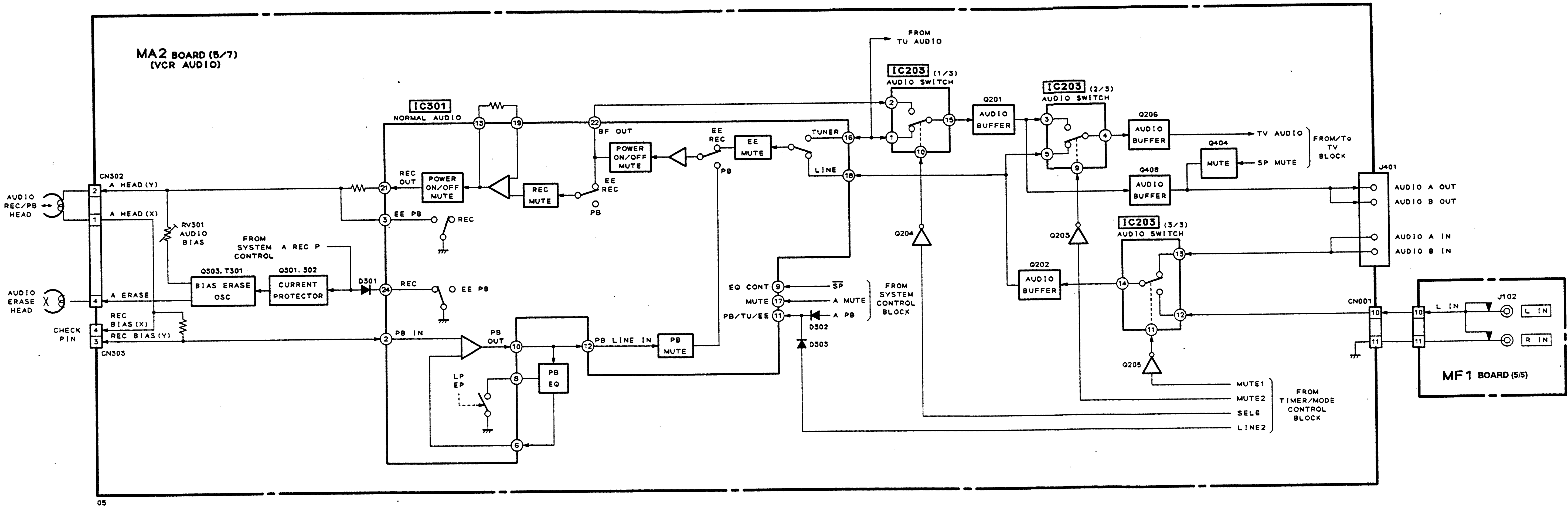
5-1. BLOCK DIAGRAMS (VIDEO SECTION)
(1) VCR Overall Block Diagram


RP3 BOARD
IC101
VIDEO REC/PB AMP
SP CH1
SP CH2
REC OUT
REC OUT
PB IN
REC Y
REC C
PB Y
PB C
ENV DET
RF SWP
YC2 BOARD
IC001
Y/C SIGNAL PROCESS
SYNC
V IN
V OUT
IC004
1H DL (DOC)
SECAM ACK
MA2 BOARD
IC501
SERVO/SYSTEM/CONTROL
DRUM SERVO
CAPSTAN SERVO
SYSTEM CONTROL
RF SWP
IC502
CTL REC/PB AMP
CTL HEAD
VIDEO RF
VIDEO CONTROL SIGNAL
AUDIO CONTROL SIGNAL
IC503 (2/2)
DRUM ERROR INTEGRATOR
DRUM D/A
D.VS
IC507
WAVE SHAPER
DRUM PG
D.PG
DRUM FG
D.FG
IC1
DRUM MOTOR DRIVE
DRUM MOTOR
DRUM PG SENSOR
DRUM FG SENSOR
IC503 (1/2)
CAPSTAN ERROR INTEGRATOR
CAP D/A
C.VS
CAPSTAN MOTOR
IC506
CAPSTAN FG AMP
CAP FG
C.FG
CAPSTAN SENSOR
IC504
LOADING MOTOR DRIVE
LOAD (+), (−)
LOAD (+), (−)
LOADING MOTOR
MECHA POSITION
CST SW
MODE1-4, C-OUT, C-START, C-IN
J102
L IN
R IN
MF1 BOARD (1/2)
L IN
J401
AUDIO IN
AUDIO OUT
IC301
AUDIO REC/PB AMP
AUDIO REC/PB HEAD
PB IN
REC OUT
BF OUT
LINE
TUNER
IC203
AUDIO SWITCH
L/R IN
AUDIO IN
AUDIO OUT
V IN
V OUT
TV AUDIO
TU AUDIO
TV
AUDIO ERASE HEAD
BIAS ERASE OSC
MF3 BOARD
SHUTTLE PING PLAY/STOP SW
FWR/RVS, RINGO-2, PALY, STOP
PAUSE
C-IN
IC703
BIAS FAIL DET
B+
IC701
CLOCK I/O
AUDIO SELECT SIGNAL
VIDEO SELECT SIGNAL
PAUSE
LED6
RESET
EJECT
RST OUT
CLK CS
IC702
RESET
B+
MF1 BOARD (2/2)
RESET
EJECT
IC001
MAIN μ COM
CLK CS
RESET
LED BLOCK
LED1-5
COSMO RESET
COSMO CS
MAIN SW/ FUNCTION KEY
MSW
KEY1
KEY2
MSW
KEY1
KEY2
SECAM ACK
IC101
SIRCS
SIRCS
SO/SI/SCLK
COSMO RESET
COSMO CS
SO/SI/SCLK/RESET/VPS DET/VPS CS
DEW
DEW
DEW SENSOR
END LED
END LED
T.REEL
T REEL FG
T.SENS
TAKE-UP END SENSOR
TAPE LED
IC402
REEL FG AMP
TAPE END DETECT
T.REEL
S.REEL
T.SENS
S.SENS
S.SENS
SUPPLY END SENSOR
S.REEL
S REEL FG
REC SAF
REC SAF
REC SAFETY
IC901
IC902
VPS
VP BOARD
05

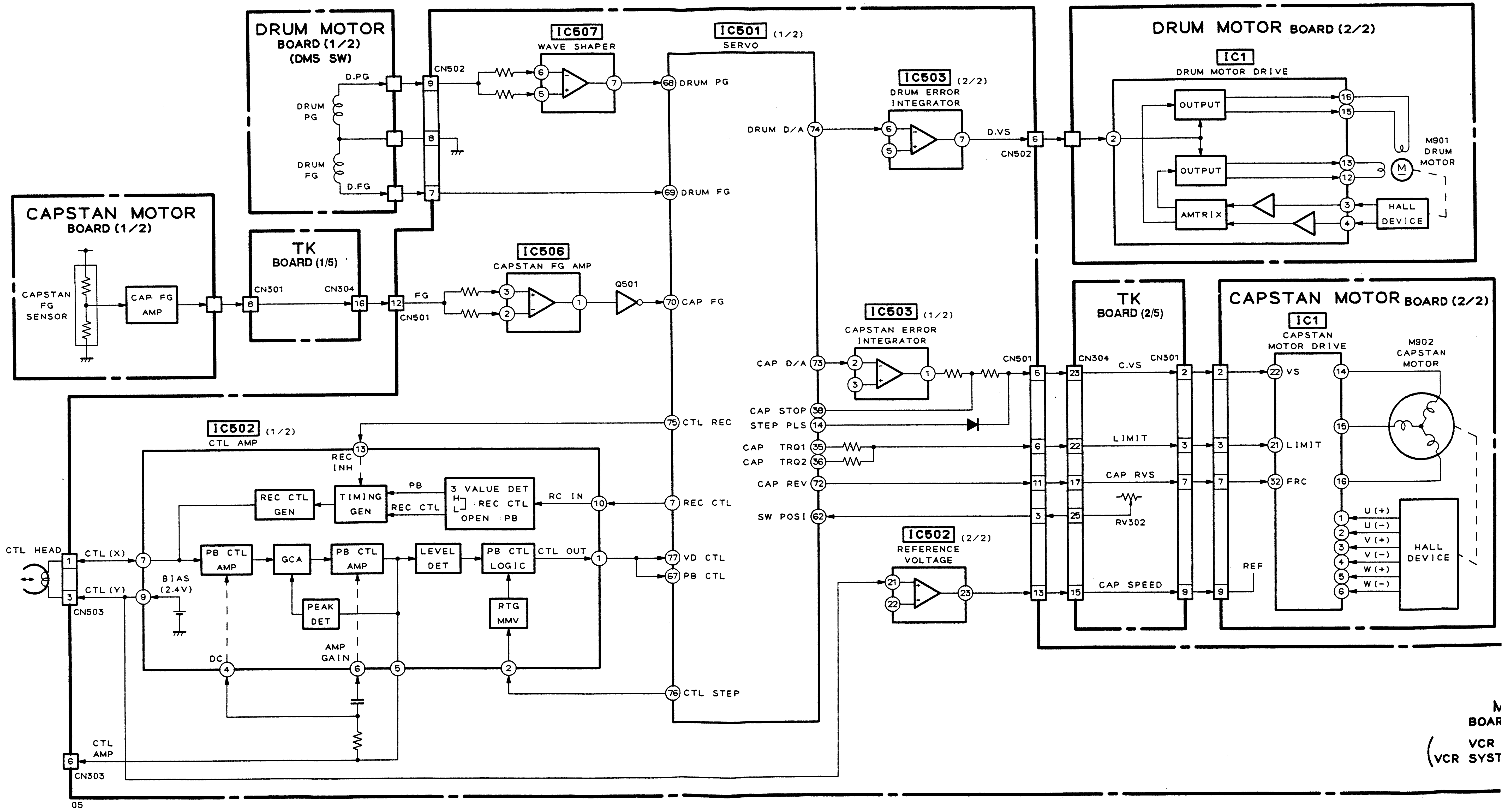
(2) Power Block Diagram

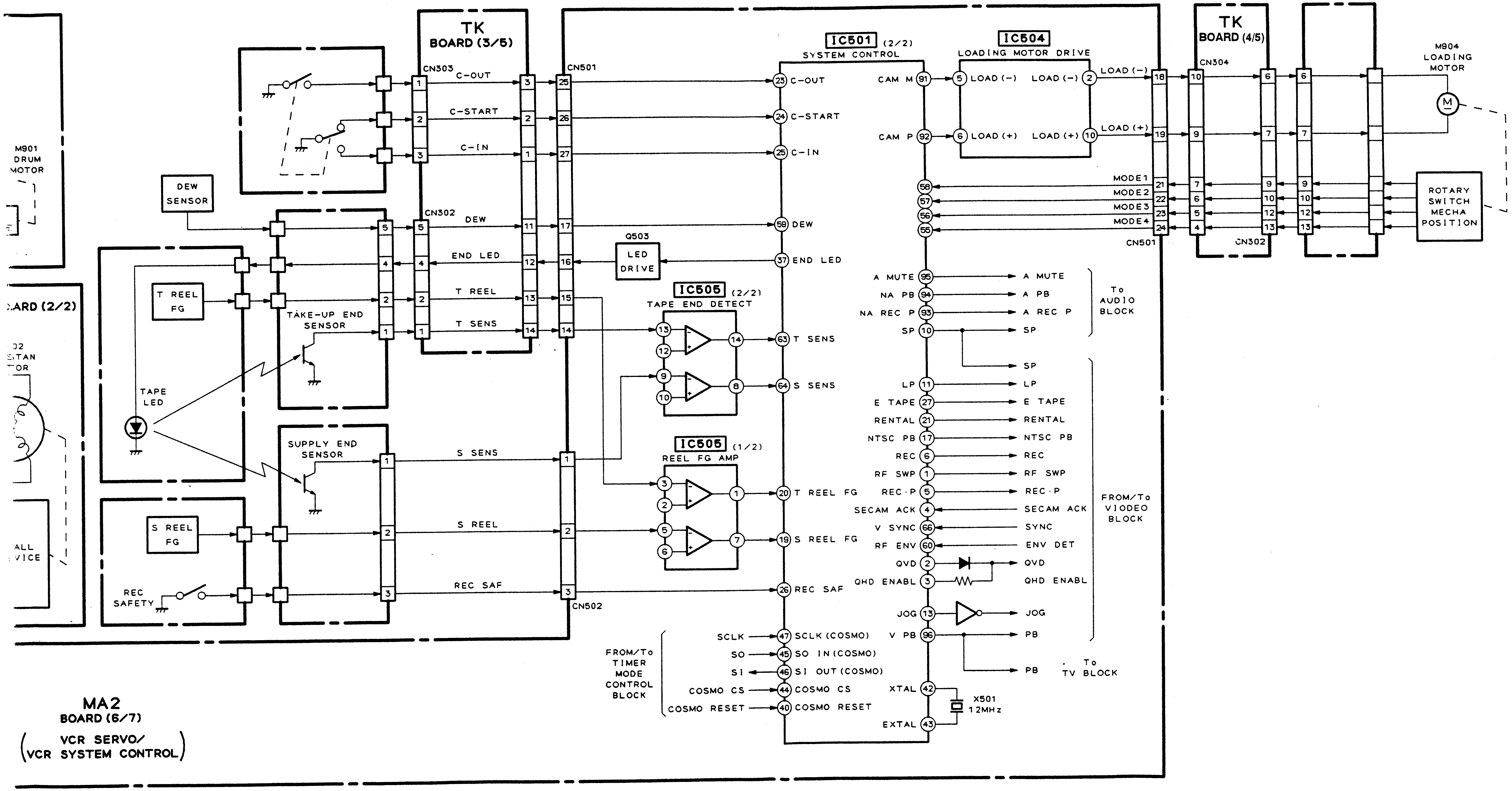

MF3 BOARD (DWS SW)
S301
SHUTTLE RING (ROTARY SWITCH)
PLAY
STOP
S302 PAUSE
D301 C-IN
CN301
MF1 BOARD (3/5) (FUNCTION SW)
S107 RESET
S108 EJECT
CN101
D101 STBY/POWER OFF
D102 VPS
D103 ON TIMER
D104 TIMER REC
D105 REC
UNS 5V
FROM TV BLOCK
RY OUT
S106 REPEAT
S105 CH+
S104 VR+
S103 REC
S102 SP/LP
S101 IN SEL
AUTO PAL/SECAM
NTSC S113
S112 CH-
S111 VR+
S110 VPS
IC101 SIRCS
MA2 BOARD (7/7) (TIMER MODE CONT)
CN002
IC701 CLOCK I/O
Q701 LED DRIVE
IC703 POWER FAIL DET
IC702 RESET PULSE GEN
D705
D704
UNS 6V
CN001
X701 4.19MHz
CT702
CF702 32kHz
To AUDIO BLOCK
To TV BLOCK
IC001
CF001 4.19MHz
FROM/To SYSTEM CONTROL
CN004
(POWER SUPPLY BLOCK)
To TV BLOCK D2 BOARD CN306
VCR POWER
CRT POWER
CN003
IC001 MAIN UCON
IC702 RESET PULSE GEN
IC701 CLOCK I/O
IC501 SYSTEM CONTROL
IC505 SENSOR AMP
IC703 POEWR FAIL DETECT
TU101
D001
IC502 CLT AMP
ZD BOARD (VCR POWER REGULATION)
CN901
CN902
To TV BLOCK D2 BOARD CN905
IC901 6V REG
IC902 5V REG
IC903 12V REG
IC905 12V REG
IC904 9V REG
32V
UNSW 6V
SW 5V
SW 12V
SW 9V
MTR 12V
15V
IC203 AUDIO SW
IC301 NORMAL AUDIO
IC506 CAP FG D.PG AMP
IC507 DRUM FG PG AMP
IC503 D/A CONV
IC504 CAM MOTOR DRIVER
LED DRIVER
CN201
VP BOARD
IC902 VPS CONTROL
IC901 VPS PROCESS
X901 4.19MHz
BACK UP 5V
D5V
FROM TV BLOCK
TV VIDEO
MF1 BOARD (4/5)
IC101 SIRCS RECEIVER
RP3 BOARD (2/2)
REC/PB AMP
IC501
CN502
CN403
YC2 BOARD (3/3)
IC001 Y/CHROMA PROCESS
IC004 SECAM DET
IC002 1H DELAY
CN001
CN002
CN402
CN401
MD
DRUM MOTOR
S-REEL FG SENSOR
TK BOARD (5/5)
CN304
CAPSTAN MOTOR
T-REEL FG SENSOR
TAPE END LED
AN 5V
END LED
CN501
CN301

(3) Audio Block Diagram

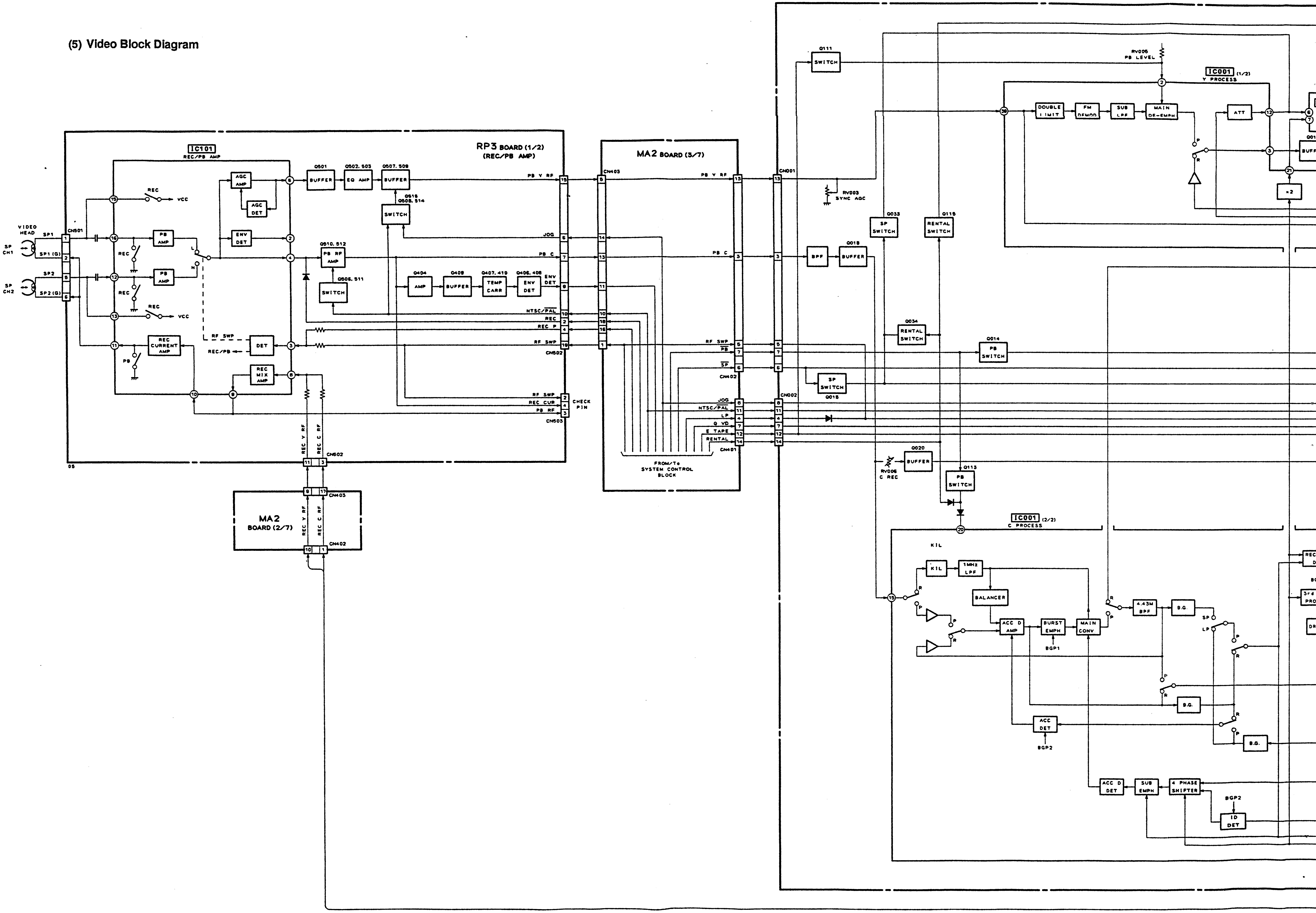

MA2 BOARD (5/7)
(VCR AUDIO)
IC301
NORMAL AUDIO
BF OUT
REC OUT
POWER ON/OFF MUTE
REC MUTE
EE REC
PB
EE PB
REC
POWER ON/OFF MUTE
EE REC
PB
EE MUTE
TUNER
LINE
CN302
A HEAD (Y)
A HEAD (X)
AUDIO REC/PB HEAD
RV301 AUDIO BIAS
FROM SYSTEM CONTROL
A REC P
Q303, T301
BIAS ERASE OSC
Q301, 302
CURRENT PROTECTOR
D301
REC
EE PB
AUDIO ERASE HEAD
A ERASE
REC BIAS (X)
REC BIAS (Y)
CHECK PIN
CN303
PB IN
PB OUT
LP
EP
PB EQ
PB LINE IN
PB MUTE
EQ CONT
MUTE
PB/TU/EE
SP
A MUTE
A PB
D302
D303
FROM SYSTEM CONTROL BLOCK
FROM TU AUDIO
IC203 (1/3)
AUDIO SWITCH
Q201
AUDIO BUFFER
Q204
IC203 (2/3)
AUDIO SWITCH
Q203
Q206
AUDIO BUFFER
TV AUDIO
Q404
MUTE
SP MUTE
FROM/To TV BLOCK
Q408
AUDIO BUFFER
J401
AUDIO A OUT
AUDIO B OUT
AUDIO A IN
AUDIO B IN
IC203 (3/3)
AUDIO SWITCH
Q202
AUDIO BUFFER
Q205
MUTE1
MUTE2
SEL6
LINE2
FROM TIMER/MODE CONTROL BLOCK
CN001
J102
L IN
L IN
R IN
MF1 BOARD (5/5)
05

(4) Servo/System Control Block Diagram

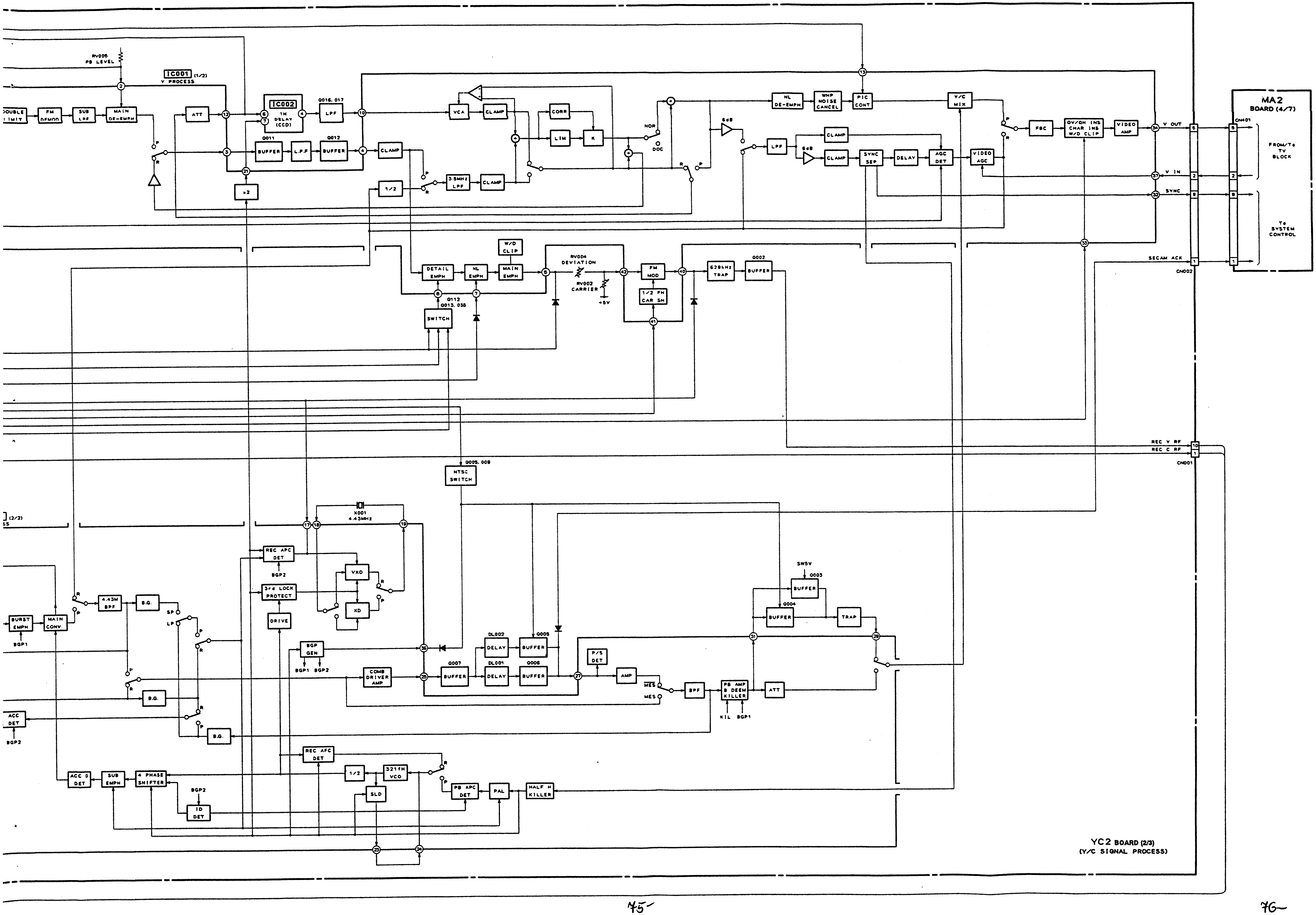

DRUM MOTOR BOARD (1/2) (DMS SW)
D.PG
DRUM PG
DRUM FG
D.FG
CN502
IC507
WAVE SHAPER
IC501 (1/2)
SERVO
DRUM PG
DRUM FG
DRUM D/A
IC503 (2/2)
DRUM ERROR INTEGRATOR
D.VS
CN502
DRUM MOTOR BOARD (2/2)
IC1
DRUM MOTOR DRIVE
OUTPUT
OUTPUT
AMTRIX
HALL DEVICE
M901 DRUM MOTOR
CAPSTAN MOTOR BOARD (1/2)
CAPSTAN FG SENSOR
CAP. FG AMP
TK BOARD (1/5)
CN301
CN304
FG
CN501
IC506
CAPSTAN FG AMP
Q501
CAP FG
IC503 (1/2)
CAPSTAN ERROR INTEGRATOR
CAP D/A
CN501
CAP STOP
STEP PLS
CAP TRQ1
CAP TRQ2
CAP REV
SW POSI
TK BOARD (2/5)
CN304
C.VS
CN301
LIMIT
CAP RVS
RV302
CAP SPEED
CAPSTAN MOTOR BOARD (2/2)
IC1
CAPSTAN MOTOR DRIVE
VS
LIMIT
FRC
REF
M902 CAPSTAN MOTOR
U(+)
U(-)
V(+)
V(-)
W(+)
W(-)
HALL DEVICE
IC502 (1/2)
CTL AMP
CTL REC
REC INH
REC CTL GEN
TIMING GEN
PB
REC CTL
3 VALUE DET
H
L
REC CTL
OPEN PB
RC IN
REC CTL
CTL HEAD
CTL (X)
CTL (Y)
CN503
BIAS (2.4V)
PB CTL AMP
GCA
PB CTL AMP
LEVEL DET
PB CTL LOGIC
CTL OUT
VD CTL
PB CTL
PEAK DET
RTG MMV
DC
AMP GAIN
CTL STEP
IC502 (2/2)
REFERENCE VOLTAGE
CTL AMP
CN303
05
M
BOAR
VCR
VCR SYST


M901
DRUM
MOTOR
.ARD (2/2)
02
STAN
OR
ALL
VICE
TK
BOARD (3/5)
CN303
C-OUT
C-START
C-IN
DEW
SENSOR
CN302
DEW
END LED
T REEL
T SENS
T REEL
FG
TAKE-UP END
SENSOR
TAPE
LED
SUPPLY END
SENSOR
S SENS
S REEL
FG
S REEL
REC
SAFETY
REC SAF
CN501
CN502
Q503
LED
DRIVE
IC505 (2/2)
TAPE END DETECT
IC505 (1/2)
REEL FG AMP
IC501 (2/2)
SYSTEM CONTROL
C-OUT
C-START
C-IN
DEW
END LED
T SENS
S SENS
T REEL FG
S REEL FG
REC SAF
SCLK
SO
SI
COSMO CS
COSMO RESET
SCLK (COSMO)
SO IN (COSMO)
SI OUT (COSMO)
COSMO CS
COSMO RESET
FROM/To
TIMER
MODE
CONTROL
BLOCK
CAM M
CAM P
A MUTE
NA PB
NA REC P
SP
LP
E TAPE
RENTAL
NTSC PB
REC
RF SWP
REC·P
SECAM ACK
V SYNC
RF ENV
QVD
QHD ENABL
JOG
V PB
XTAL
EXTAL
X501
12MHz
A MUTE
A PB
A REC P
SP
To
AUDIO
BLOCK
SP
LP
E TAPE
RENTAL
NTSC PB
REC
RF SWP
REC·P
SECAM ACK
SYNC
ENV DET
QVD
QHD ENABL
JOG
PB
FROM/To
VIODEO
BLOCK
PB
To
TV BLOCK
IC504
LOADING MOTOR DRIVE
LOAD (-)
LOAD (+)
LOAD (-)
LOAD (+)
MODE1
MODE2
MODE3
MODE4
CN501
TK
BOARD (4/5)
CN304
CN302
M904
LOADING
MOTOR
M
ROTARY
SWITCH
MECHA
POSITION
MA2
BOARD (6/7)
(VCR SERVO/
VCR SYSTEM CONTROL)

(5) Video Block Diagram

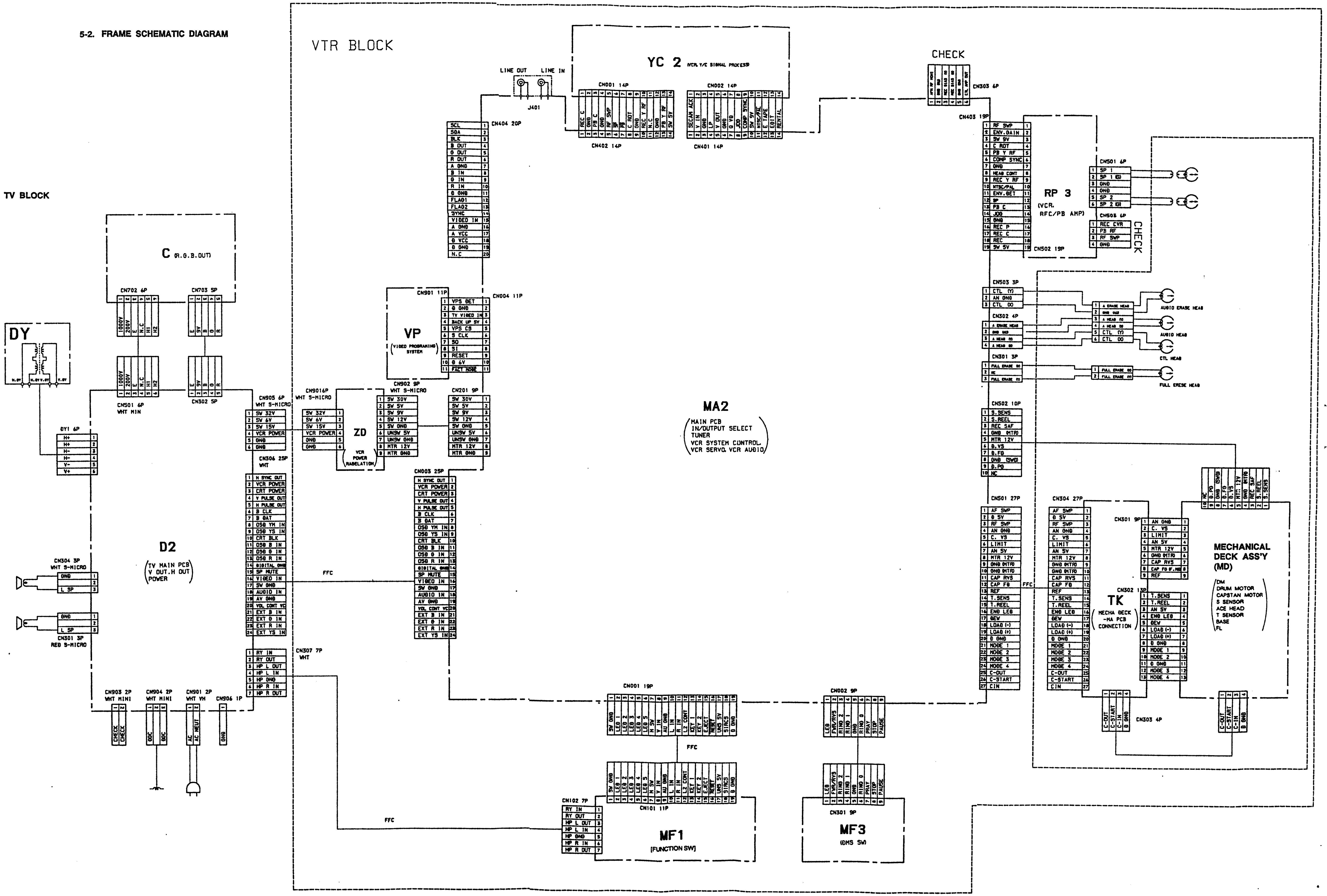


VIDEO HEAD
SP CH1
SP CH2
SP1
SP1 (G)
SP2
SP2 (G)
CN501
IC101
REC/PB AMP
RP3 BOARD (1/2)
(REC/PB AMP)
REC
VCC
PB AMP
AGC AMP
AGC DET
ENV DET
RF SWP
REC/PB
DET
REC CURRENT AMP
REC MIX AMP
PB
Q501
BUFFER
Q502, 503
EQ AMP
Q507, 509
BUFFER
Q515
Q508, 514
SWITCH
Q510, 512
PB RF AMP
Q506, 511
SWITCH
Q404
AMP
Q409
BUFFER
Q407, 410
TEMP CARR
Q406, 408
ENV DET
PB Y RF
JOG
PB C
ENV DET
NTSC/PAL
REC
REC P
RF SWP
CN502
RF SWP
REC CUR
PB RF
CHECK PIN
CN503
REC Y RF
REC C RF
CN602
MA2 BOARD (2/7)
CN403
CN402
MA2 BOARD (3/7)
CN403
PB Y RF
PB C
RF SWP
PB
SP
CN402
JOG
NTSC/PAL
LP
Q VD
E TAPE
RENTAL
CN401
FROM/To SYSTEM CONTROL BLOCK
CN001
CN002
Q111
SWITCH
RV003
SYNC AGC
Q033
SP SWITCH
Q115
RENTAL SWITCH
BPF
Q019
BUFFER
Q034
RENTAL SWITCH
Q014
PB SWITCH
SP SWITCH
Q018
Q020
BUFFER
RV006
C REC
Q113
PB SWITCH
RV005
PB LEVEL
IC001 (1/2)
Y PROCESS
DOUBLE LIMIT
FM DEMOD
SUB LPF
MAIN DE-EMPH
ATT
BUFF
×2
IC001 (2/2)
C PROCESS
KIL
1MHz LPF
BALANCER
ACC D AMP
BURST EMPH
BGP1
MAIN CONV
4.43M BPF
B.G.
SP
LP
ACC DET
BGP2
ACC D DET
SUB EMPH
4 PHASE SHIFTER
ID DET

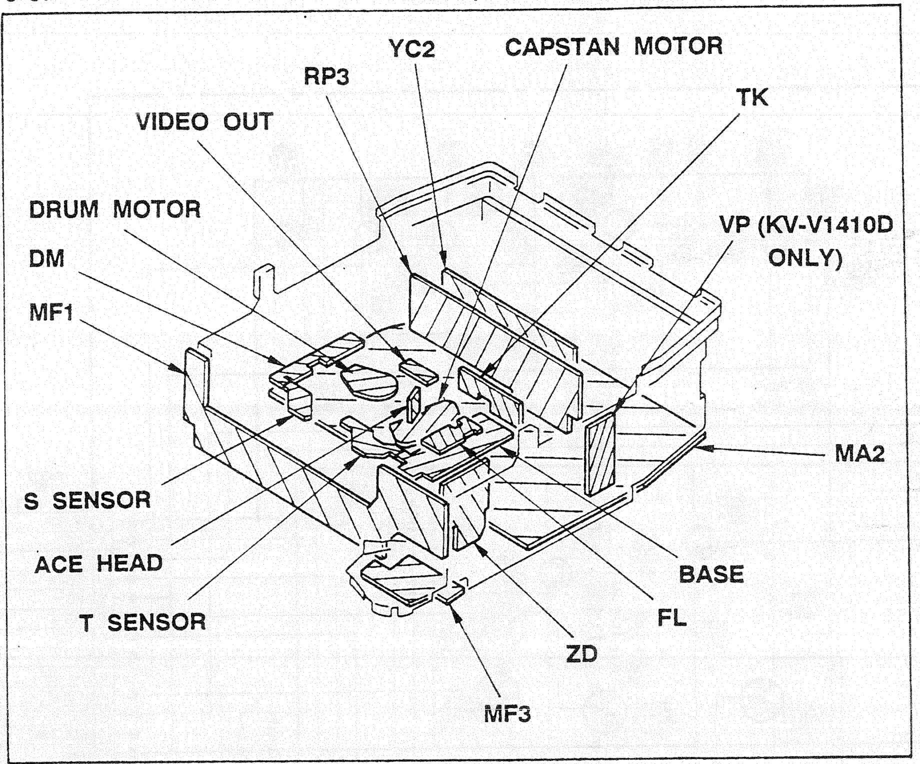

RV005
PB LEVEL
IC001 (1/2)
Y PROCESS
DOUBLE LIMIT
FM DEMOD
SUB LPF
MAIN DE-EMPH
ATT
IC002
1H DELAY (CCD)
Q016, 017
LPF
Q011
BUFFER
L.P.F
Q012
BUFFER
CLAMP
×2
1/2
3.5MHz LPF
CLAMP
VCA
CLAMP
CORR
LIM
K
NOR
DOC
6dB
NL DE-EMPH
WHP NOISE CANCEL
PIC CONT
Y/C MIX
LPF
6dB
CLAMP
CLAMP
SYNC SEP
DELAY
AGC DET
VIDEO AGC
FBC
QV/QH INS CHAR INS W/D CLIP
VIDEO AMP
V OUT
V IN
SYNC
SECAM ACK
MA2 BOARD (4/7)
CN401
FROM/To TV BLOCK
To SYSTEM CONTROL
CN002
W/D CLIP
DETAIL EMPH
NL EMPH
MAIN EMPH
Q112
Q013, 035
SWITCH
RV004 DEVIATION
RV002 CARRIER
+5V
FM MOD
1/2 FH CAR SH
629kHz TRAP
Q002
BUFFER
REC Y RF
REC C RF
CN001
Q005, 009
NTSC SWITCH
(2/2)
X001 4.43MHz
REC APC DET
BGP2
VXO
XO
3rd LOCK PROTECT
DRIVE
BGP GEN
BGP1 BGP2
COMB DRIVER AMP
Q007
BUFFER
DL002
DELAY
DL001
DELAY
Q005
BUFFER
Q006
BUFFER
P/S DET
AMP
MES
BPF
PB AMP B DEEM KILLER
KIL BGP1
ATT
SW5V
Q003
BUFFER
Q004
BUFFER
TRAP
BURST EMPH
BGP1
MAIN CONV
4.43M BPF
B.G.
SP
LP
B.G.
ACC DET
BGP2
B.G.
REC AFC DET
1/2
321fH VCO
SLD
PB APC DET
PAL
HALF H KILLER
ACC D DET
SUB EMPH
4 PHASE SHIFTER
BGP2
ID DET
P
R

YC2 BOARD (2/3)
(Y/C SIGNAL PROCESS)

5-2. FRAME SCHEMATIC DIAGRAM


TV BLOCK
VTR BLOCK
C (R.G.B.OUT)
CN702 6P
CN703 5P
DY
DY1 6P
H+
H+
H-
H-
V-
V+
CN501 6P WHT MIN
CN302 5P
1000V
200V
E
N.C
H1
H2
9V
G
B
R
D2
(TV MAIN PCB V OUT.H OUT POWER)
CN304 3P WHT S-MICRO
GND
L SP
CN301 3P RED S-MICRO
CN905 6P WHT S-MICRO
SW 32V
SW 6V
SW 15V
VCR POWER
GND
CN306 25P WHT
H SYNC OUT
VCR POWER
CRT POWER
V PULSE OUT
H PULSE OUT
D CLK
D DAT
OSD YM IN
OSD YS IN
CRT BLK
OSD B IN
OSD G IN
OSD R IN
DIGITAL GND
SP MUTE
VIDEO IN
SW GND
AUDIO IN
AV GND
VOL CONT VC
EXT B IN
EXT G IN
EXT R IN
EXT YS IN
CN307 7P WHT
RY IN
RY OUT
HP L OUT
HP L IN
HP GND
HP R IN
HP R OUT
CN903 2P WHT MINI
CN904 2P WHT MINI
CN901 2P WHT VH
CN906 1P
CHECK
DGC
AC
AC NEUT
GND
FFC
CN9016P WHT S-MICRO
ZD
(VCR POWER REGULATION)
CN902 9P WHT S-MICRO
SW 30V
SW 5V
SW 9V
SW 12V
SW GND
UNSW 5V
UNSW GND
MTR 12V
MTR GND
CN201 9P
VP
(VIDEO PROGRAMING SYSTEM)
CN901 11P
VPS DET
G GND
TV VIDEO IN
BACK UP 5V
VPS CS
S CLK
SO
SI
RESET
D 6V
FACT MODE
CN004 11P
CN404 20P
SCL
SDA
BLK
B OUT
G OUT
R OUT
A GND
B IN
G IN
R IN
G GND
FLAG1
FLAG2
SYNC
VIDEO IN
A GND
A VCC
G VCC
G GND
N.C
CN003 25P
LINE OUT
LINE IN
J401
YC 2 (VCR Y/C SIGNAL PROCESS)
CN001 14P
CN002 14P
CN402 14P
CN401 14P
REC C
GND
PB C
RF SWP
SP
C ROT
REC Y RF
N.C
PB Y RF
SW 5V
SECAM ACK
LP
V OUT
V IN
JOG
COMP SYNC
SW 9V
NTSC/PAL
E.TAPE
EDIT
RENTAL
MA2
(MAIN PCB IN/OUTPUT SELECT TUNER VCR SYSTEM CONTROL VCR SERVO, VCR AUDIO)
CHECK
CN303 6P
CN403 19P
RF SWP
ENV.DAIN
SW 9V
C ROT
PB Y RF
COMP SYNC
HEAD CONT
REC Y RF
NTSC/PAL
ENV.DET
SP
PB C
JOG
REC P
REC C
REC
SW 5V
RP 3
(VCR. RFC/PB AMP)
CN502 19P
CN501 6P
SP 1
SP 1 (G)
SP 2
SP 2 (G)
CN505 4P
REC CVR
PB RF
RF SWP
CN503 3P
CTL (Y)
AN GND
CTL (G)
CN302 4P
A ERASE HEAD
A HEAD (R)
A HEAD (G)
CN301 3P
FULL ERASE (R)
NC
FULL ERASE (G)
AUDIO ERASE HEAD
AUDIO HEAD
CTL HEAD
FULL ERESE HEAD
CN502 10P
S.SENS
S.REEL
REC SAF
GND (MTR)
MTR 12V
D.VS
D.FG
GND (SWD)
D.PG
NC
CN501 27P
AF SWP
D 5V
RF SWP
AN GND
C. VS
LIMIT
AN 5V
MTR 12V
GND (MTR)
CAP RVS
CAP FG
REF
T.SENS
T.REEL
END LED
DEW
LOAD (-)
LOAD (+)
D GND
MODE 1
MODE 2
MODE 3
MODE 4
C-OUT
C-START
CIN
CN304 27P
TK
(MECHA DECK -MA PCB CONNECTION)
CN301 9P
CN302 13P
CN303 4P
MECHANICAL DECK ASS'Y (MD)
(DM DRUM MOTOR CAPSTAN MOTOR S SENSOR ACE HEAD T SENSOR BASE FL)
CN001 19P
CN101 11P
5V GND
LED 1
LED 2
LED 3
LED 4
LED 5
M 5V
AU GND
L IN
R IN
L2 CONT
KEY 1
KEY 2
EJECT
RESET
UNS 5V
SIRCS
CN002 9P
CN301 9P
LED
FWR/RVS
RING 2
RING 1
RING 0
PRAY
STOP
PAUSE
CN102 7P
MF1 (FUNCTION SW)
MF3 (DMS SW)

5-3. CIRCUIT BOARDS LOCATION (VIDEO SECTION)



5-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS (VIDEO SECTION)

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.
  kΩ =1000Ω, MΩ =1000KΩ
- Indication of resistance, which does not have one for rating electrical power, is as follows.

  Pitch: 5 mm
  Rating electrical power ¼ W (CHIP: 1/10W)
- ⊟ : nonflammable resistor.
- △ : internal component.
- ☐ : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Readings are taken with a 10MΩ digital multimeter.
- Voltage are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- ＊ : Can not be measured.
- Circled numbers are waveform references.
- ━━━ : B+ bus.
- ━ ━ ━ : B − bus.
- no mark : REC/PB mode (SP)
  ( ) : REC mode (SP)
  < > : PB mode (SP)
  [ ] : RF
- ▨▷ : signal path.

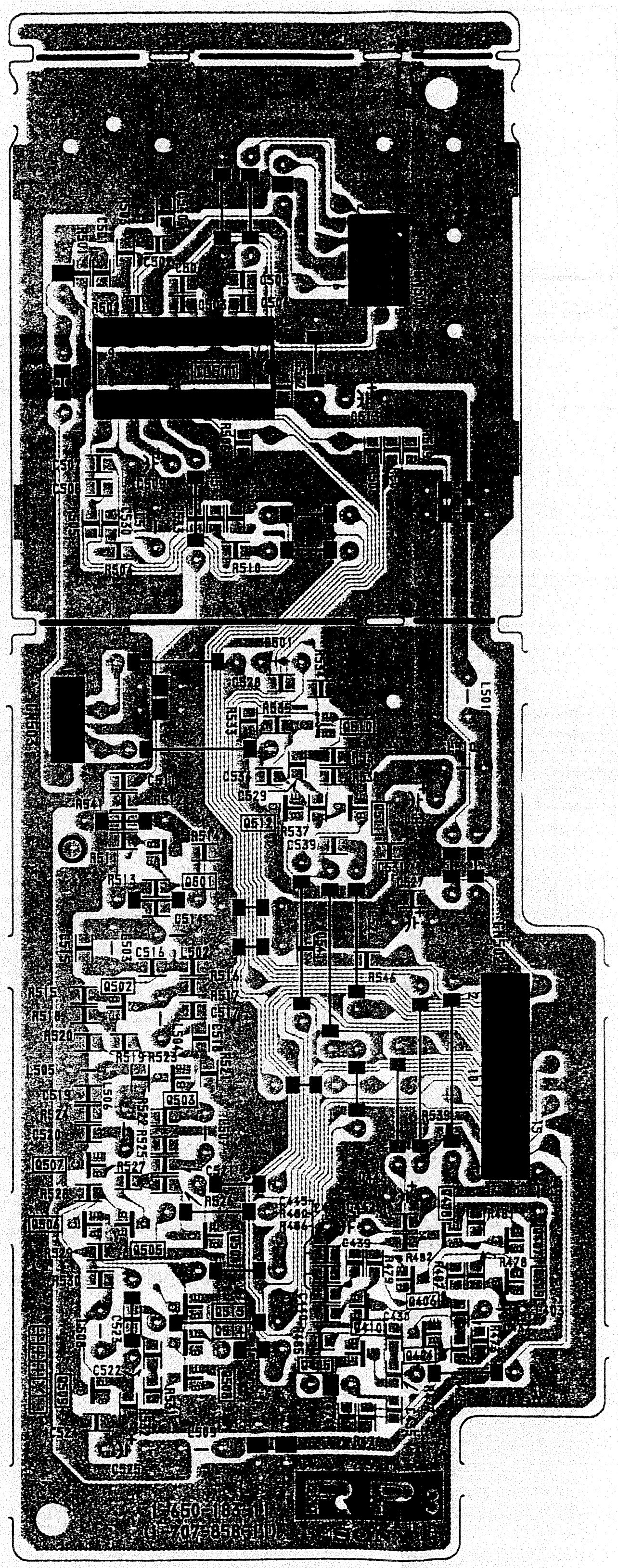
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Reference information

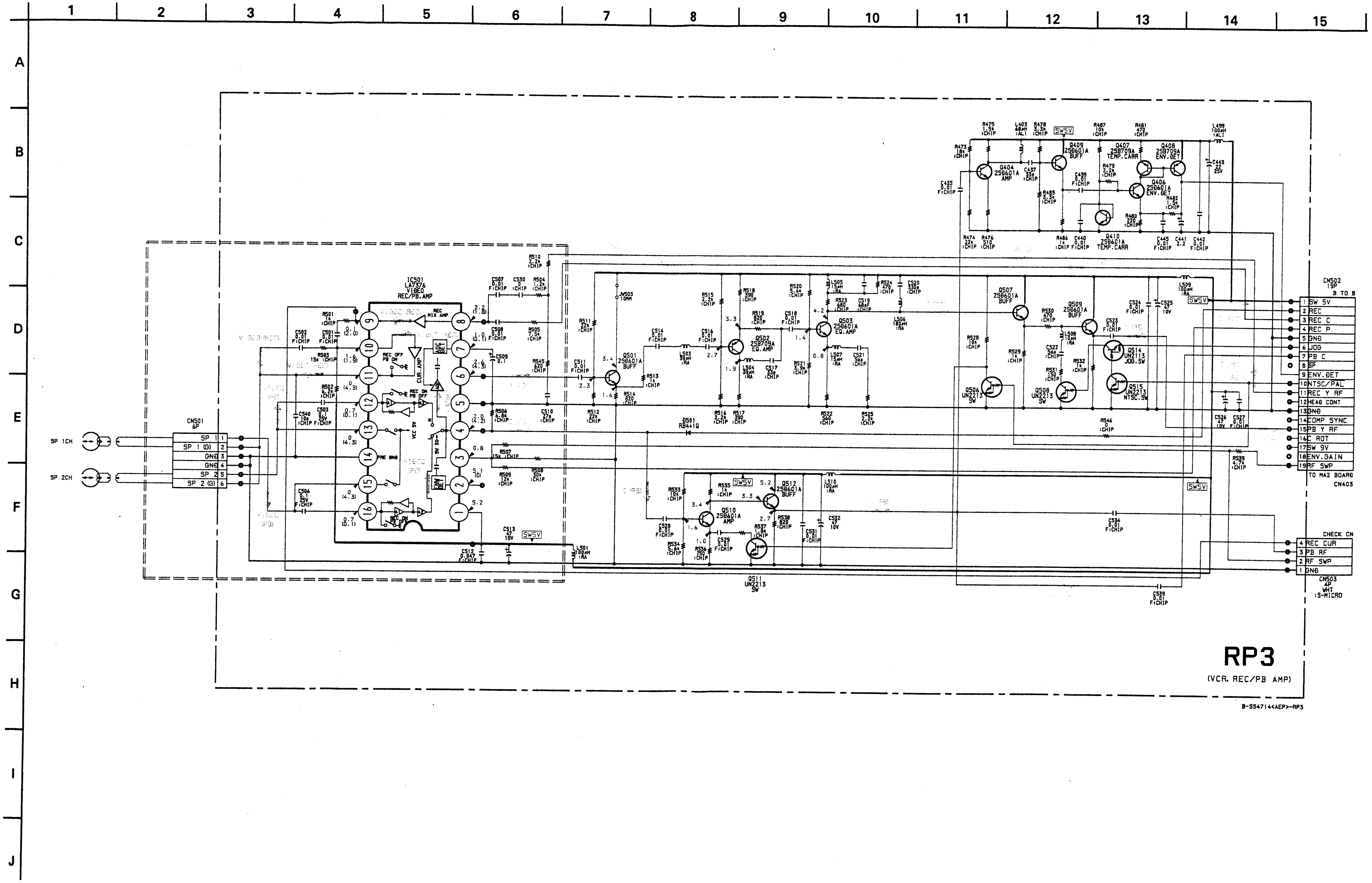
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

RP3 [VCR, REC/PB AMP]

– RP3 Board –

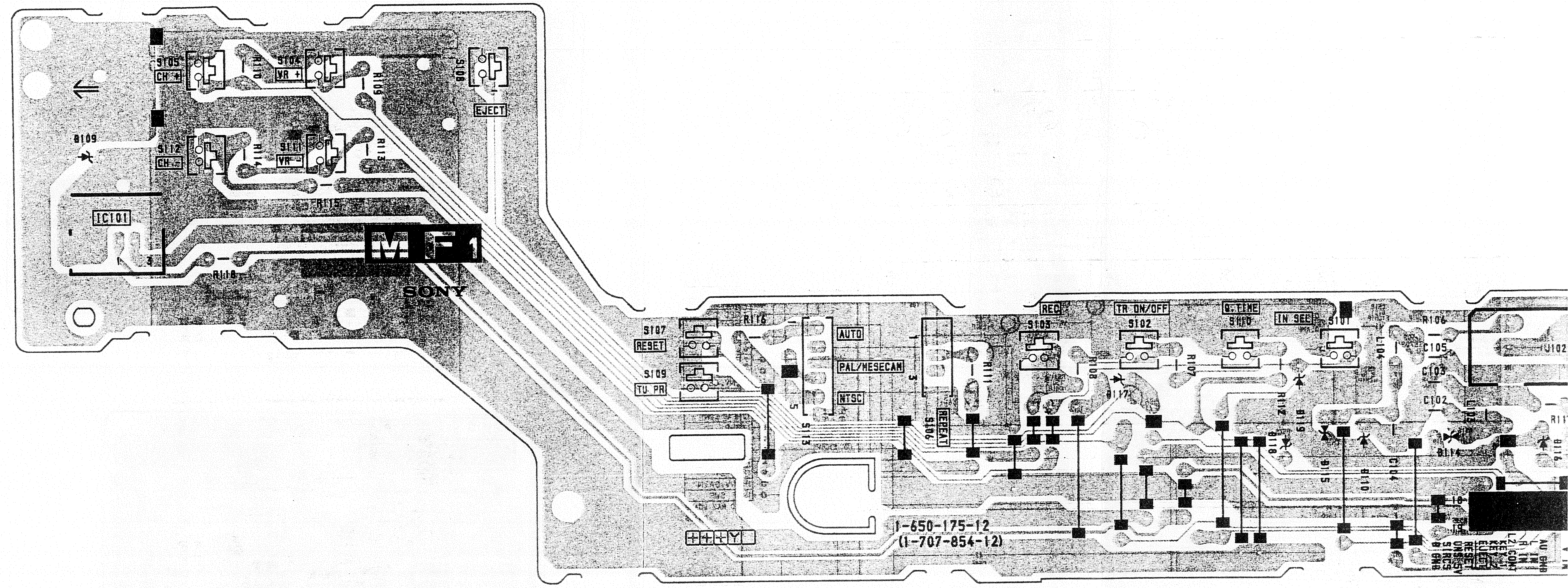


(1) Schematic Diagram of RP3 Board

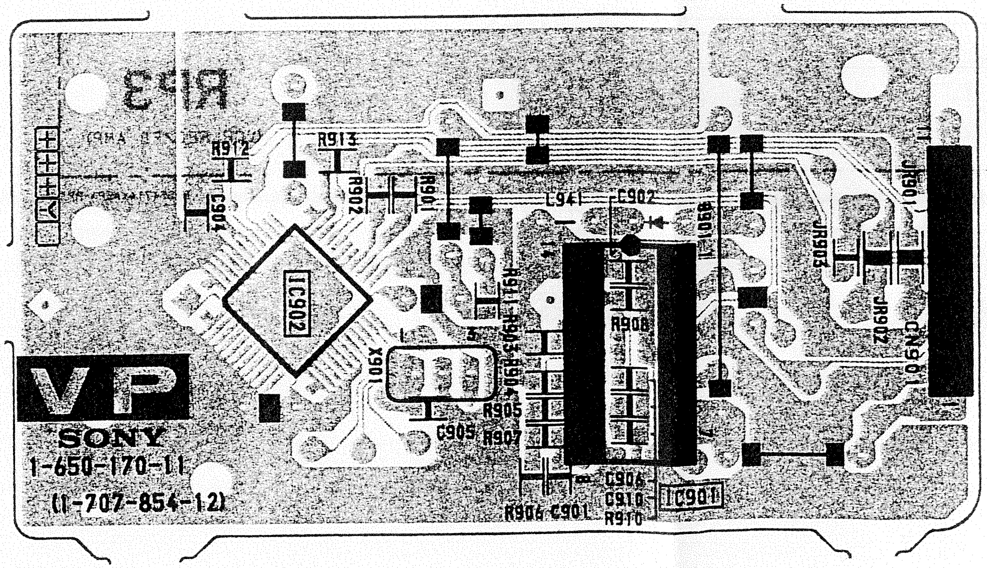

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
SP 1CH
SP 2CH
CN501
6P
1 SP 1
2 SP 1 (G)
3 GND
4 GND
5 SP 2
6 SP 2 (G)
IC501
LA7376
VIDEO
REC/PB.AMP
REC MIX AMP
CUR.AMP
PRE GND
VCC 5V
SW 30
Q501
2SB601A
BUFF
JW503
10MM
Q502
2SB709A
EQ.AMP
Q503
2SB601A
EQ.AMP
D501
RB441Q
Q404
2SB601A
AMP
Q409
2SB601A
BUFF
Q407
2SB709A
TEMP.CARR
Q408
2SB709A
ENV.DET
Q406
2SB601A
ENV.DET
Q410
2SB601A
TEMP.CARR
Q507
2SB601A
BUFF
Q509
2SB601A
BUFF
Q506
UN2213
SW
Q508
UN2213
SW
Q514
UN2213
JOG.SW
Q515
UN2213
NTSC.SW
Q510
2SB601A
AMP
Q511
UN2213
SW
Q512
2SB601A
BUFF
SW5V
CN502
19P
B TO B
1 SW 5V
2 REC
3 REC C
4 REC P
5 GND
6 JOG
7 PB C
8 SP
9 ENV.DET
10 NTSC/PAL
11 REC Y RF
12 HEAD CONT
13 GND
14 COMP SYNC
15 PB Y RF
16 C ROT
17 SW 9V
18 ENV.GAIN
19 RF SWP
TO MA2 BOARD
CN403
CHECK CN
4 REC CUR
3 PB RF
2 RF SWP
1 GND
CN503
4P
WHT
:S-MICRO
RP3
(VCR. REC/PB AMP)
B-554714<AEP>-RP3

MF1 [FUNCTION SW] **VP** [VIDEO PROGRAMING SYSTEM]

– MF1 Board –


S105
CH +
S104
VR +
R110
R109
S106
EJECT
D109
S112
CH –
S111
VR –
R114
R113
R115
IC101
R118
MF1
SONY
S107
RESET
S109
TU PR
R116
AUTO
PAL/MESECAM
NTSC
S113
S106
REPEAT
R111
REC
S103
R108
D117
TR ON/OFF
S102
R107
Q.TIME
S110
IN SEC
S101
L104
R106
C105
C103
C102
R112
D119
D118
D115
D114
D110
C104
1-650-175-12
(1-707-854-12)

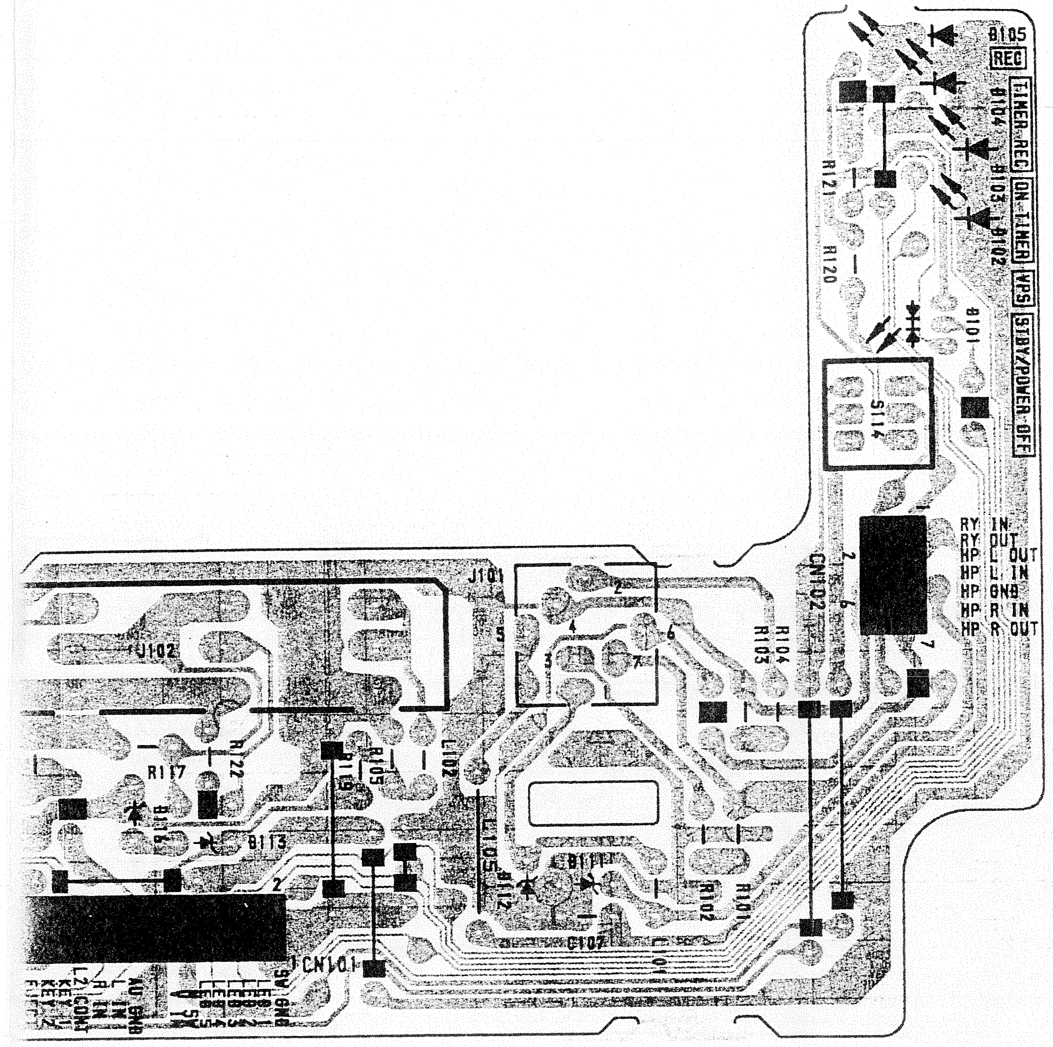
– VP Board –


R912
R913
R902
R901
C904
IC902
L941
C902
L908
JR903
JR902
JR901
CN901
R908
X901
C905
R905
R907
C906
C910
R910
R906
C901
IC901
VP
SONY
1-650-170-11
(1-707-854-12)

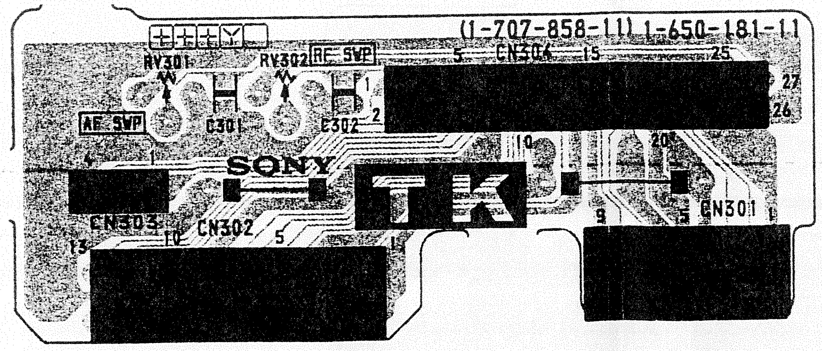
TK [MECHA DECK – MA PCB CONNECTION]

MF3 [DMS SW]

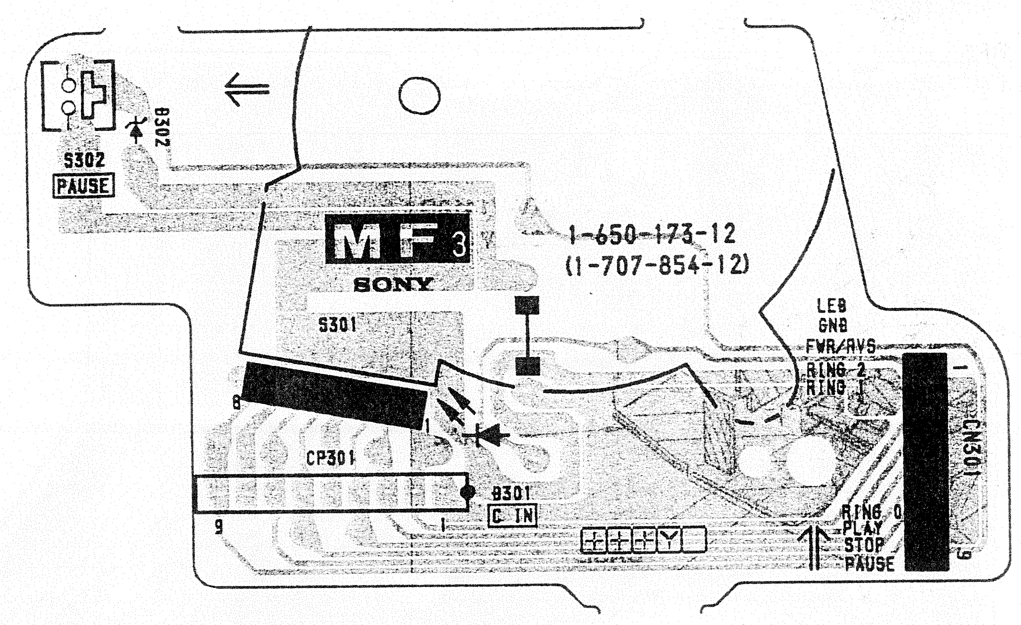
ZD [VCR, POWER RAGELATION]


B105
REC
B104
TIMER REC
B103
ON TIMER
B102
VPS
B101
STBY/POWER OFF
R121
R120
S114
RY IN
RY OUT
HP L OUT
HP L IN
HP GNB
HP R IN
HP R OUT
CN102
R104
R103
J101
IC102
R117
R122
R119
R105
L102
B113
B111
B112
R102
R101
C107
CN101

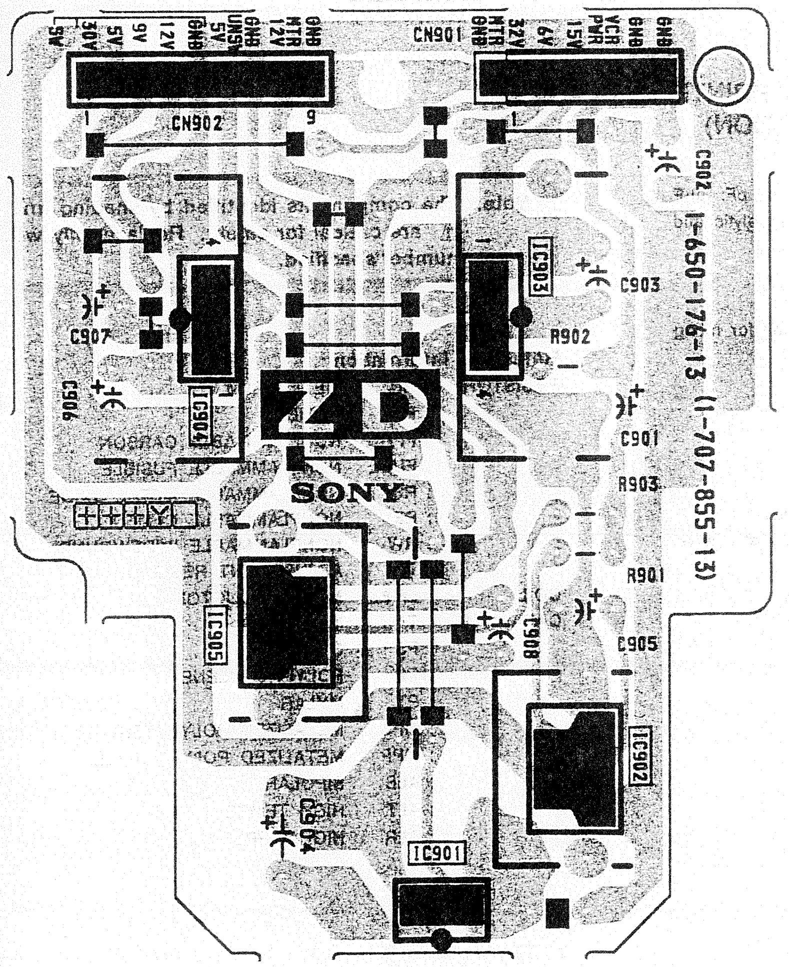
– TK Board –


(1-707-858-11) 1-650-181-11
RV301
RV302
RF SWP
AF SWP
C301
C302
CN304
SONY
TK
CN303
CN302
CN301

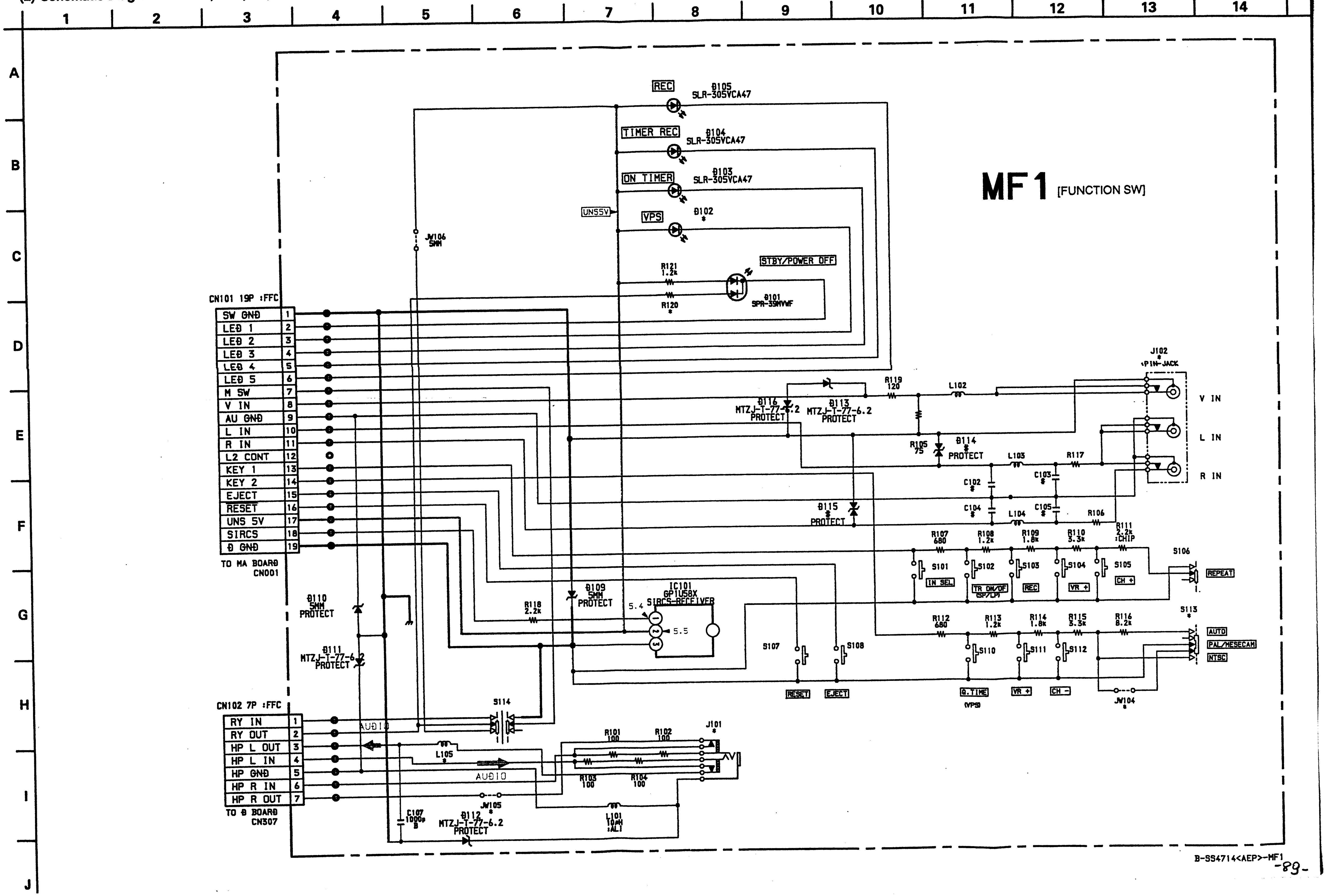
– MF3 Board –


S302
PAUSE
B302
MF3
SONY
1-650-173-12
(1-707-854-12)
S301
CP301
B301
C IN
LEB
GNB
FWR/RVS
RING 2
RING 1
RING 0
PLAY
STOP
PAUSE
CN301

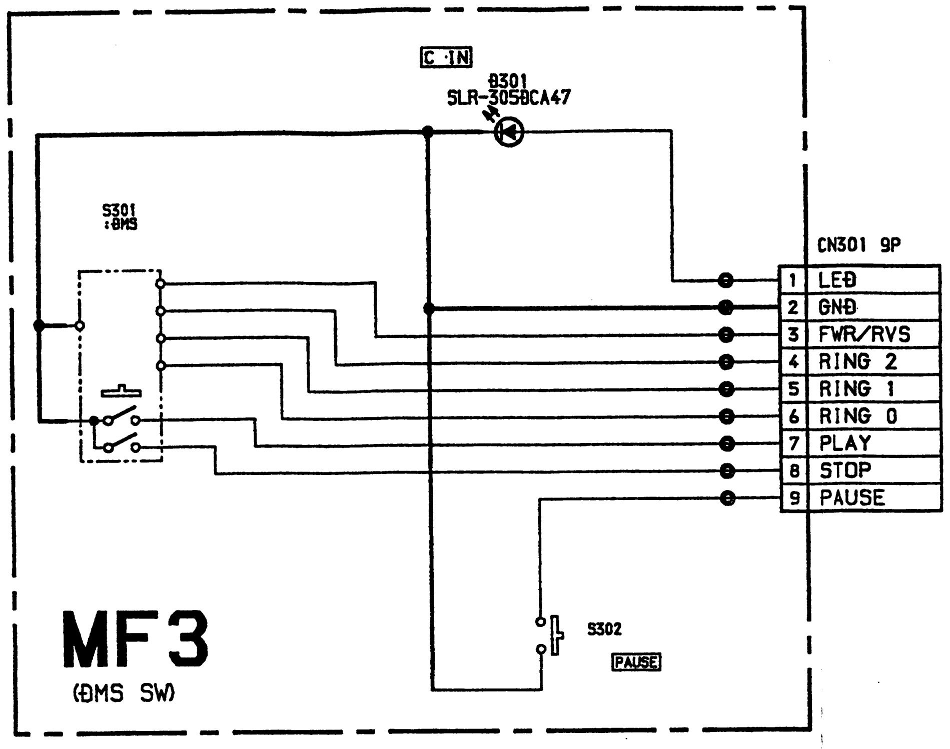
– ZD Board –


CN901
CN902
30V
5V
9V
12V
GNB
5V
UNSW
GNB
MTR
12V
GNB
MTR
32V
6V
15V
PWR
VCR
GNB
GNB
C902
IC903
C903
R902
C907
C906
IC904
ZD
SONY
C901
R903
R901
IC905
C908
C905
IC902
IC901
1-650-176-13 (1-707-855-13)

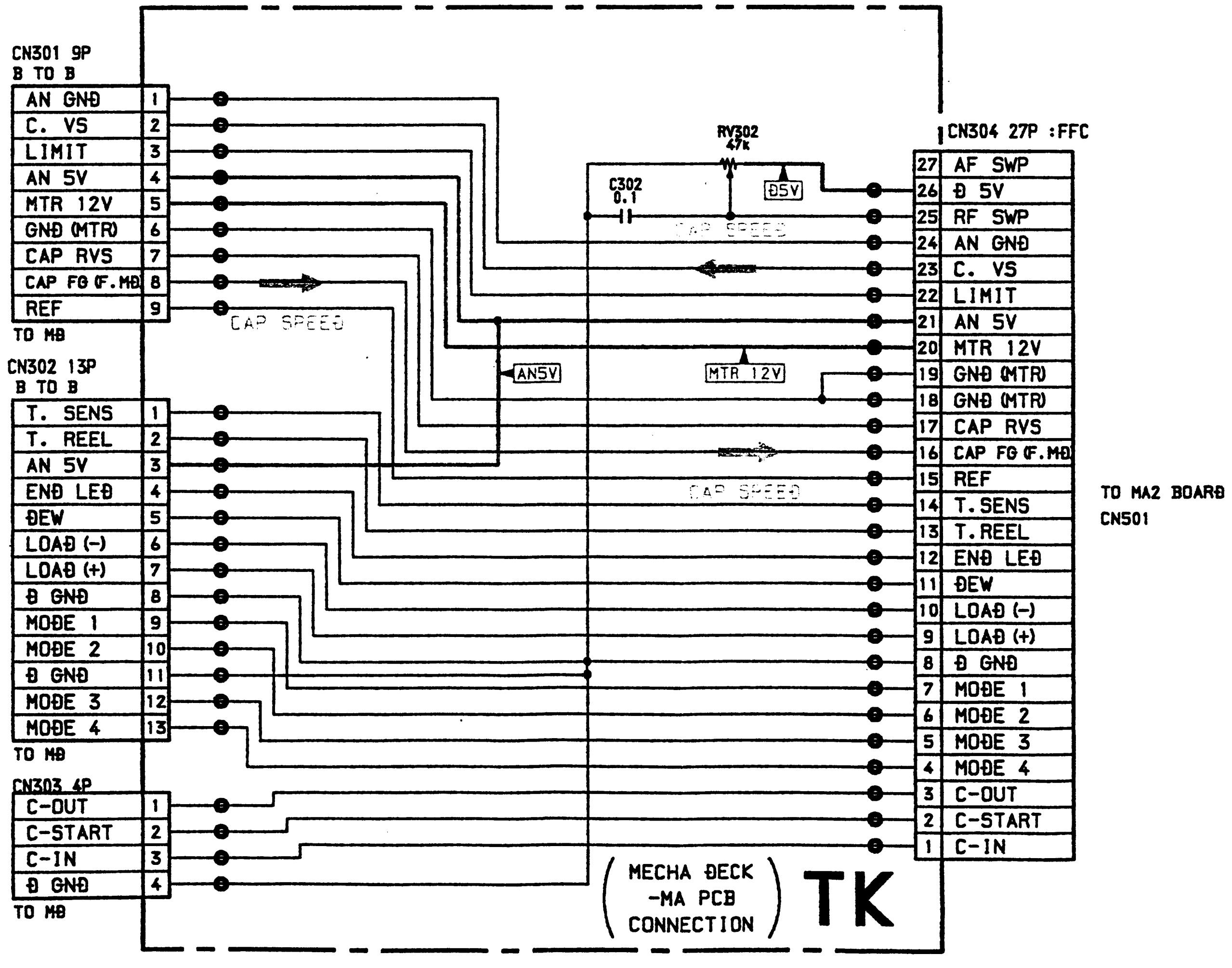
(2) Schematic Diagrams of MF1, MF3, TK, VP and ZD Boards


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
MF1 [FUNCTION SW]
REC
D105
SLR-305VCA47
TIMER REC
D104
SLR-305VCA47
ON TIMER
D103
SLR-305VCA47
UNS5V
VPS
D102
*
JW106
5MM
R121
1.2k
R120
*
STBY/POWER OFF
D101
SPR-39MVWF
CN101 19P :FFC
SW GND 1
LED 1 2
LED 2 3
LED 3 4
LED 4 5
LED 5 6
M SW 7
V IN 8
AU GND 9
L IN 10
R IN 11
L2 CONT 12
KEY 1 13
KEY 2 14
EJECT 15
RESET 16
UNS 5V 17
SIRCS 18
D GND 19
TO MA BOARD
CN001
D116
MTZJ-T-77-6.2
PROTECT
D113
MTZJ-T-77-6.2
PROTECT
R119
120
L102
J102
*
:PIN-JACK
V IN
L IN
R IN
R105
75
D114
*
PROTECT
L103
R117
C102
*
C103
*
C104
*
L104
C105
*
R106
D115
*
PROTECT
R107
680
R108
1.2k
R109
1.8k
R110
3.3k
R111
2.2k
:CHIP
S106
S101
IN SEL
S102
TR ON/OF
(SP/LP)
S103
REC
S104
VR +
S105
CH +
REPEAT
D110
5MM
PROTECT
D111
MTZJ-T-77-6.2
PROTECT
R118
2.2k
D109
5MM
PROTECT
IC101
GP1U58X
SIRCS-RECEIVER
5.4
5.5
1
2
3
S107
S108
RESET
EJECT
R112
680
R113
1.2k
R114
1.8k
R115
3.3k
R116
8.2k
S113
*
AUTO
PAL/MESECAM
NTSC
S110
S111
S112
Q.TIME
(VPS)
VR +
CH −
JW104
*
CN102 7P :FFC
RY IN 1
RY OUT 2
HP L OUT 3
HP L IN 4
HP GND 5
HP R IN 6
HP R OUT 7
TO B BOARD
CN307
S114
AUDIO
L105
*
AUDIO
R101
100
R102
100
J101
*
R103
100
R104
100
JW105
*
C107
1000p
B
D112
*
MTZJ-T-77-6.2
PROTECT
L101
10µH
:ALI

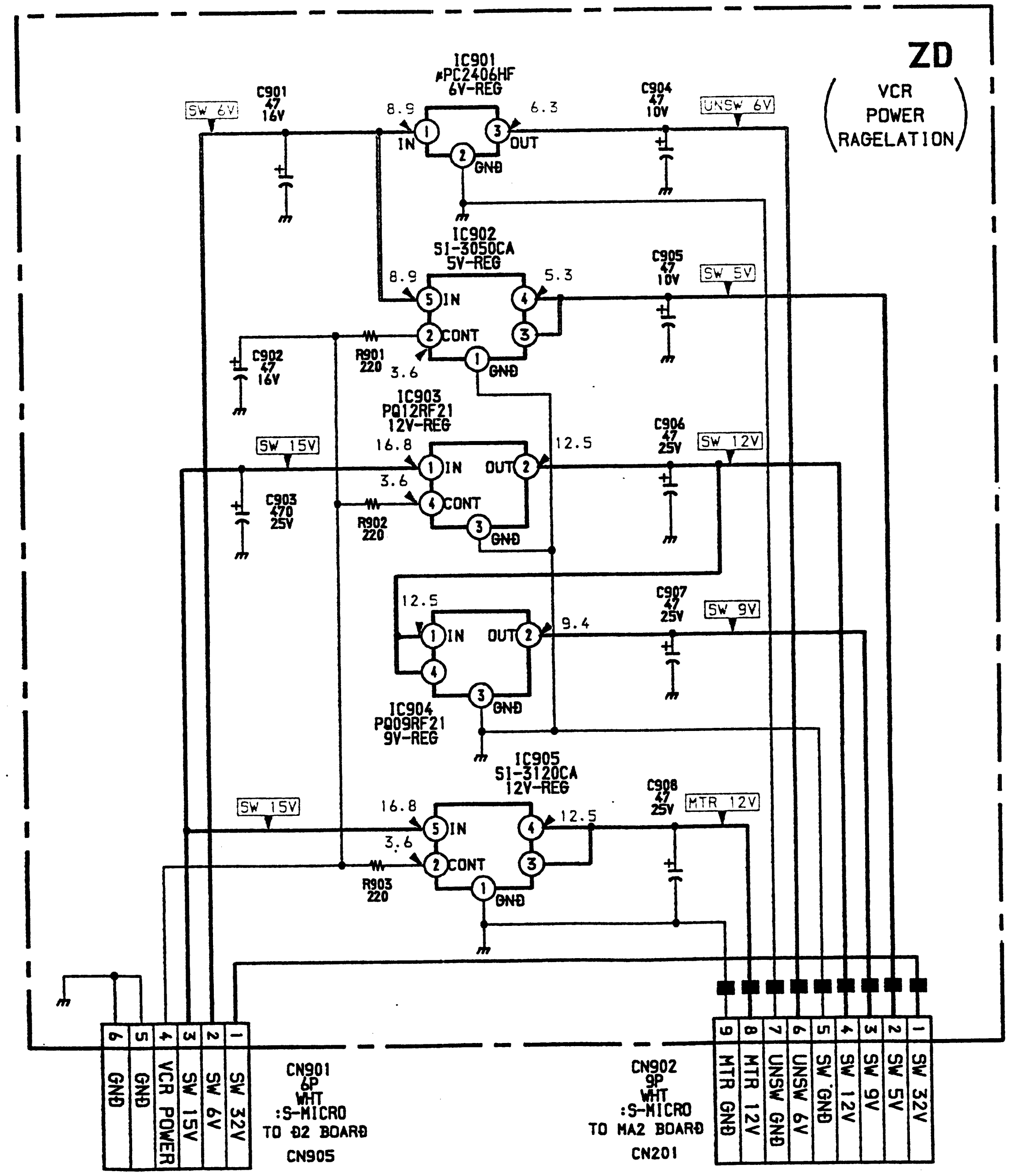
B-SS4714<AEP>-MF1


C-IN
D301
SLR-305DCA47
S301
:DMS
CN301 9P
1 LED
2 GND
3 FWR/RVS
4 RING 2
5 RING 1
6 RING 0
7 PLAY
8 STOP
9 PAUSE
TO MA2 BOARD
CN002
S302
PAUSE
MF3
(DMS SW)

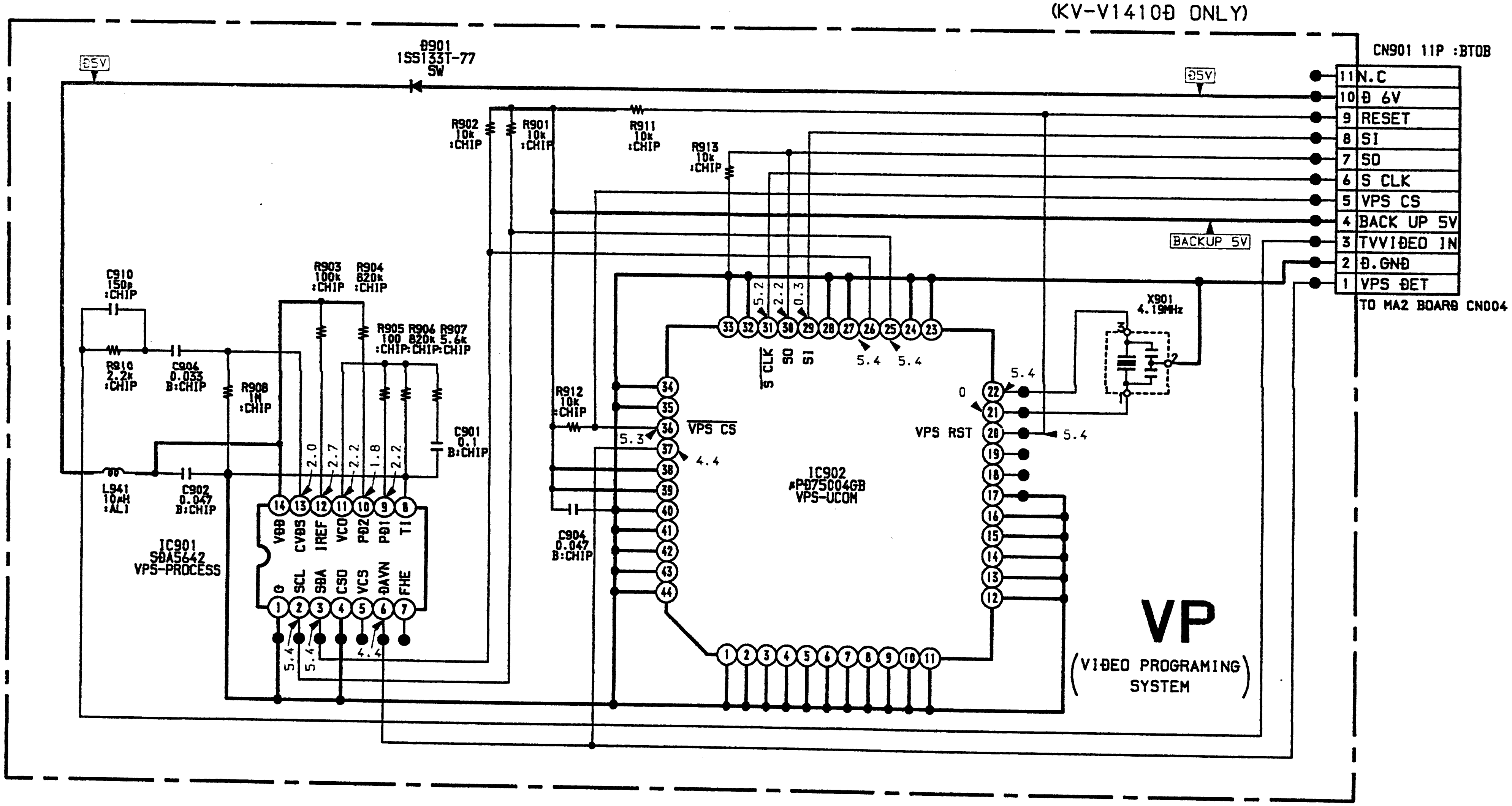
B-SS4714<AEP>-MF3


CN301 9P
B TO B
1 AN GND
2 C. VS
3 LIMIT
4 AN 5V
5 MTR 12V
6 GND (MTR)
7 CAP RVS
8 CAP FG (F.MD)
9 REF
TO MB
CN302 13P
B TO B
1 T. SENS
2 T. REEL
3 AN 5V
4 END LED
5 DEW
6 LOAD (-)
7 LOAD (+)
8 D GND
9 MODE 1
10 MODE 2
11 D GND
12 MODE 3
13 MODE 4
TO MB
CN303 4P
1 C-OUT
2 C-START
3 C-IN
4 D GND
TO MB
RV302
47k
C302
0.1
D5V
CAP SPEED
AN5V
MTR 12V
CN304 27P :FFC
27 AF SWP
26 D 5V
25 RF SWP
24 AN GND
23 C. VS
22 LIMIT
21 AN 5V
20 MTR 12V
19 GND (MTR)
18 GND (MTR)
17 CAP RVS
16 CAP FG (F.MD)
15 REF
14 T.SENS
13 T.REEL
12 END LED
11 DEW
10 LOAD (-)
9 LOAD (+)
8 D GND
7 MODE 1
6 MODE 2
5 MODE 3
4 MODE 4
3 C-OUT
2 C-START
1 C-IN
TO MA2 BOARD
CN501
MECHA DECK
-MA PCB
CONNECTION
TK

B-SS4714<AEP>-TK.

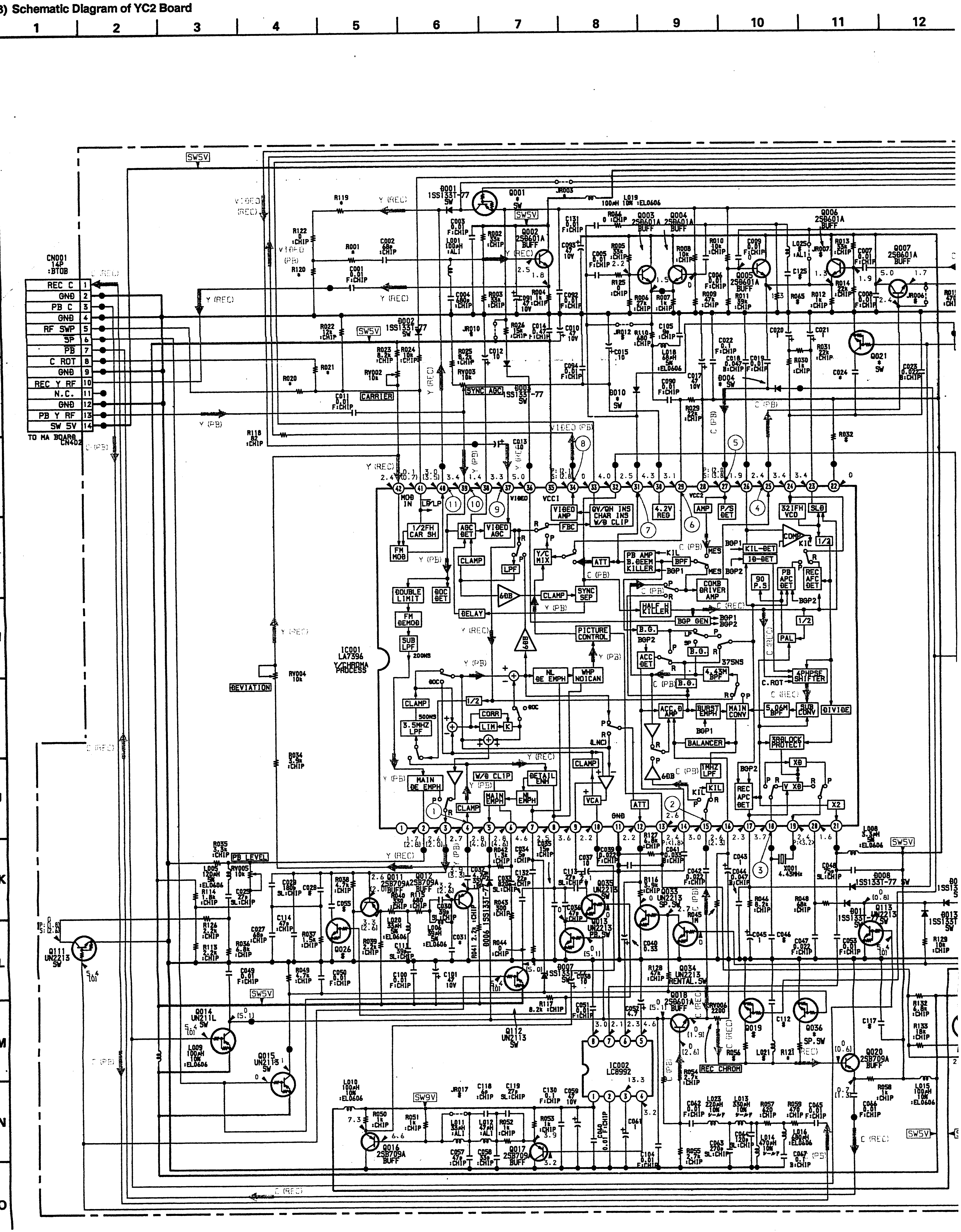

ZD
VCR
POWER
RAGELATION
SW 6V
C901
47
16V
IC901
μPC2406HF
6V-REG
8.9
6.3
IN
OUT
GND
C904
47
10V
UNSW 6V
IC902
S1-3050CA
5V-REG
8.9
5.3
IN
CONT
GND
C905
47
10V
SW 5V
C902
47
16V
R901
220
3.6
IC903
PQ12RF21
12V-REG
SW 15V
16.8
IN
OUT
CONT
GND
12.5
C906
47
25V
SW 12V
C903
470
25V
R902
220
3.6
12.5
IN
OUT
9.4
C907
47
25V
SW 9V
GND
IC904
PQ09RF21
9V-REG
IC905
S1-3120CA
12V-REG
C908
47
25V
MTR 12V
SW 15V
16.8
3.6
12.5
IN
CONT
GND
R903
220
6 GND
5 GND
4 VCR POWER
3 SW 15V
2 SW 6V
1 SW 32V
CN901
6P
WHT
:S-MICRO
TO D2 BOARD
CN905
CN902
9P
WHT
:S-MICRO
TO MA2 BOARD
CN201
9 MTR GND
8 MTR 12V
7 UNSW GND
6 UNSW 6V
5 SW GND
4 SW 12V
3 SW 9V
2 SW 5V
1 SW 32V

B-SS4714<AEP>-ZD.


(KV-V1410D ONLY)
CN901 11P :BTOB
11 N.C
10 D 6V
9 RESET
8 SI
7 SO
6 S CLK
5 VPS CS
4 BACK UP 5V
3 TVVIDEO IN
2 D.GND
1 VPS DET
TO MA2 BOARD CN004
D5V
D5V
BACKUP 5V
D901
1SS133T-77
SW
R902
10k
:CHIP
R901
10k
:CHIP
R911
10k
:CHIP
R913
10k
:CHIP
R912
10k
:CHIP
C904
0.047
B:CHIP
X901
4.19MHz
IC902
μPD75004GB
VPS-UCOM
VPS RST
VPS CS
S CLK
SO
SI
5.2
2.2
0.3
5.4
5.4
5.4
0
5.4
5.3
4.4
C910
150p
:CHIP
R910
2.2k
:CHIP
C904
0.033
B:CHIP
R908
1M
:CHIP
R903
100k
:CHIP
R904
820k
:CHIP
R905 R906 R907
100 820k 5.6k
:CHIP:CHIP:CHIP
C901
0.1
B:CHIP
L941
10μH
:AL1
C902
0.047
B:CHIP
IC901
SDA5642
VPS-PROCESS
VBB
CVBS
IREF
VCO
PD2
PD1
TI
G
SCL
SDA
CSO
VCS
DAVN
FHE
2.0
2.7
2.2
1.8
2.2
5.4
5.4
4.4
VP
(VIDEO PROGRAMING SYSTEM)

B-SS4714<AEP>-VP.

3) Schematic Diagram of YC2 Board


1
2
3
4
5
6
7
8
9
10
11
12
CN001 14P :BTOB
REC C 1
GND 2
PB C 3
GND 4
RF SWP 5
SP 6
PB 7
C ROT 8
GND 9
REC Y RF 10
N.C. 11
GND 12
PB Y RF 13
SW 5V 14
TO MA BOARD CN4D2
SW5V
SW9V
Y (REC)
Y (PB)
C (REC)
C (PB)
VIDEO (REC)
VIDEO (PB)
IC001 LA7396 Y/CHROMA PROCESS
IC002 LC8992
CARRIER
SYNC AGC
DEVIATION
PB LEVEL
REC CHROM
FM MOD
1/2FH CAR SH
AGC DET
VIDEO AGC
VIDEO AMP
DV/DH INS CHAR INS W/B CLIP
4.2V REG
AMP
P/S DET
32IFH VCO
SLB
COMP
KIL-DET
ID-DET
PB AMP B.DEEM KILLER
BPF
COMB DRIVER AMP
90 P.S
PB APC DET
REC AFC DET
HALF H KILLER
BGP GEN
B.G.
ACC DET
4.43M BPF
PAL
4PHPSE SHIFTER
ACC B AMP
BURST EMPH
MAIN CONV
5.06M BPF
SUB CONV
DIVIDE
BALANCER
3BBLOCK PROTECT
1MHZ LPF
KIL
REC APC DET
X8
V X8
X2
Y/C MIX
FBC
ATT
CLAMP
LPF
SYNC SEP
DOUBLE LIMIT
DOC DET
DELAY
FM DEMOD
SUB LPF
PICTURE CONTROL
NL DE EMPH
WHP NOICAN
CORR
LIM
3.5MHZ LPF
MAIN DE EMPH
W/B CLIP
DETAIL ENH
MAIN EMPH
NL EMPH
VCA
VCC1
VCC2
GND
X001 4.43MHz
Q001 SW
Q002 2SB601A BUFF
Q003 2SB601A BUFF
Q004 2SB601A BUFF
Q005 2SB601A BUFF
Q006 2SB601A BUFF
Q007 2SB601A BUFF
Q011 2SB709A BUFF
Q012 2SB709A BUFF
Q013 UN2213 PB.SW
Q014 UN211L SW
Q015 UN2113 SW
Q016 2SB709A BUFF
Q017 2SB709A BUFF
Q018 2SB601A BUFF
Q019
Q020 2SB709A BUFF
Q021 SW
Q026
Q033 UN2213 SP.SW
Q034 UN2213 RENTAL.SW
Q035 UN2213 SW
Q036 SP.SW
Q111 UN2213 SW
Q112 UN2113 SW
Q113 UN2213 SW
D001 1SS133T-77 SW
D002 1SS133T-77 SW
D003 1SS133T-77 SW
D004 SW
D006 1SS133T-77
D007 1SS133T-77 SW
D008 1SS133T-77 SW
D010 SW
RV002 10k
RV003 10k
RV004 10k
RV005 10k
RV006 2200
L019 100μH 10N :EL0606

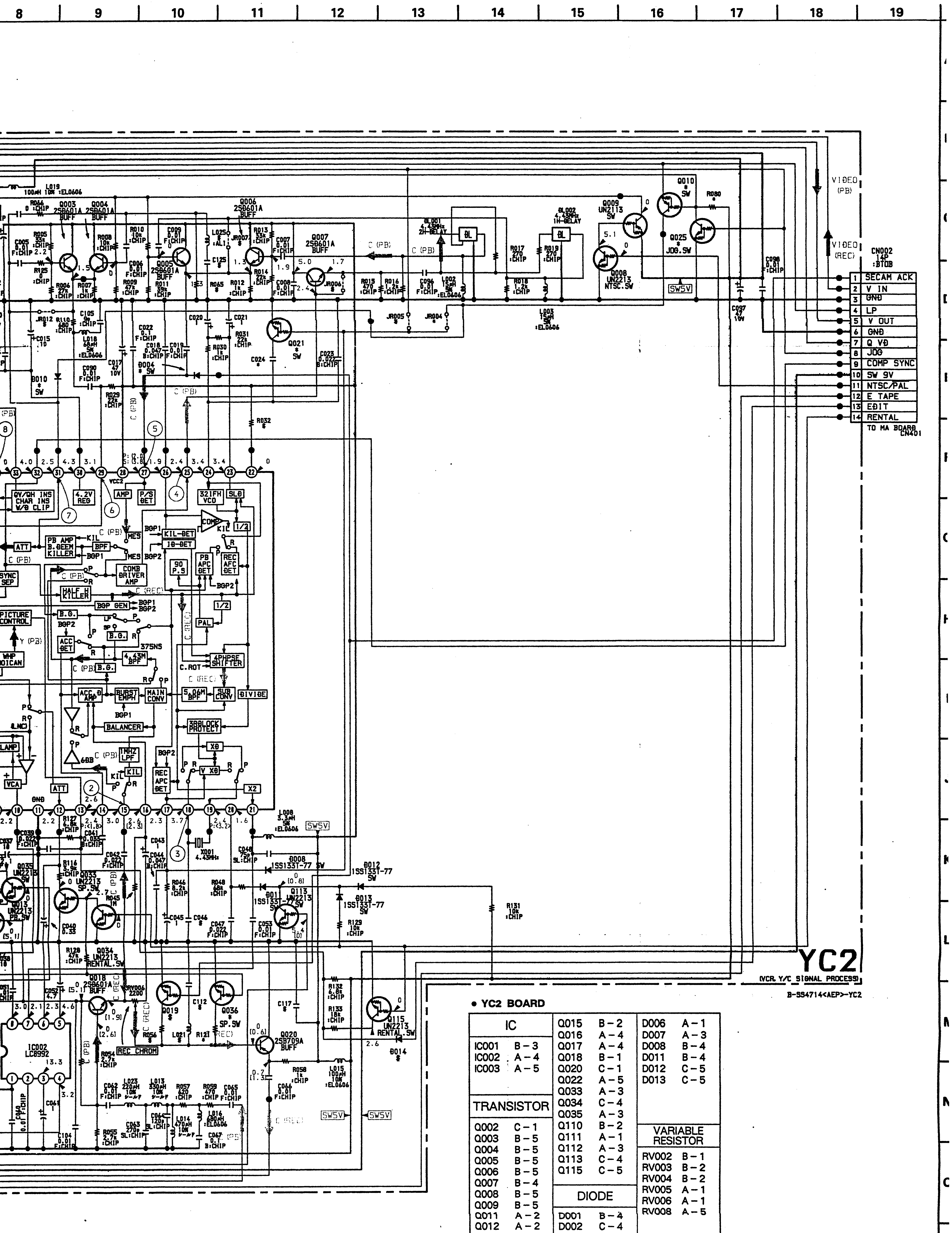
Schematic diagrams

MF1 MF3

← TK VP ZD boards

Schematic diagram

YC2 board →


8
9
10
11
12
13
14
15
16
17
18
19
VIDEO (PB)
VIDEO (REC)
CN002 14P :BTOB
1 SECAM ACK
2 V IN
3 GND
4 LP
5 V OUT
6 GND
7 Q VD
8 JOG
9 COMP SYNC
10 SW 9V
11 NTSC/PAL
12 E TAPE
13 EDIT
14 RENTAL
TO MA BOARD CN401
Q003 2SB601A BUFF
Q004 2SB601A BUFF
Q005 2SB601A BUFF
Q006 2SB601A BUFF
Q007 2SB601A BUFF
Q008 UN2213 NTSC.SW
Q009 UN2113 SW
Q010 SW
Q025 JOG.SW
Q021 SW
D004 SW
D010 SW
BL001 4.43MHz 2H-DELAY
BL002 4.43MHz 1H-DELAY
SW5V
QV/QH INS CHAR INS W/B CLIP
4.2V REG
AMP
P/S DET
321FH VCO
SLD
COMP
KIL-DET
ID-DET
1/2
PB AMP B.DEEM KILLER
BPF
ATT
SYNC SEP
COMB DRIVER AMP
90 P.S
PB APC DET
REC AFC DET
HALF H KILLER
BGP GEN
PICTURE CONTROL
B.G.
ACC DET
4.43M BPF
375NS
PAL
4PHPSE SHIFTER
C.ROT
ACC.D AMP
BURST EMPH
MAIN CONV
5.06M LPF
SUB CONV
DIVIDE
BALANCER
3DBLOCK PROTECT
X8
V X8
1MHZ LPF
KIL
6DB
REC APC DET
X2
VCA
CLAMP
WHP DICAN
X001 4.43MHz
D008 1SS133T-77 SW
D011 1SS133T-77 SW
D012 1SS133T-77 SW
D013 1SS133T-77 SW
Q113 UN2213 SW
Q033 UN2213 SP.SW
Q034 UN2213 RENTAL.SW
Q035 UN2213 SW
Q013 UN2213 PB.SW
Q018 2SB601A BUFF
Q019
Q036 SP.SW
Q020 2SB709A BUFF
Q115 UN2213 RENTAL.SW
D014
IC002 LC8992
REC CHROM
C (PB)
C (REC)
YC2
(VCR. Y/C SIGNAL PROCESS)
B-SS4714<AEP>-YC2

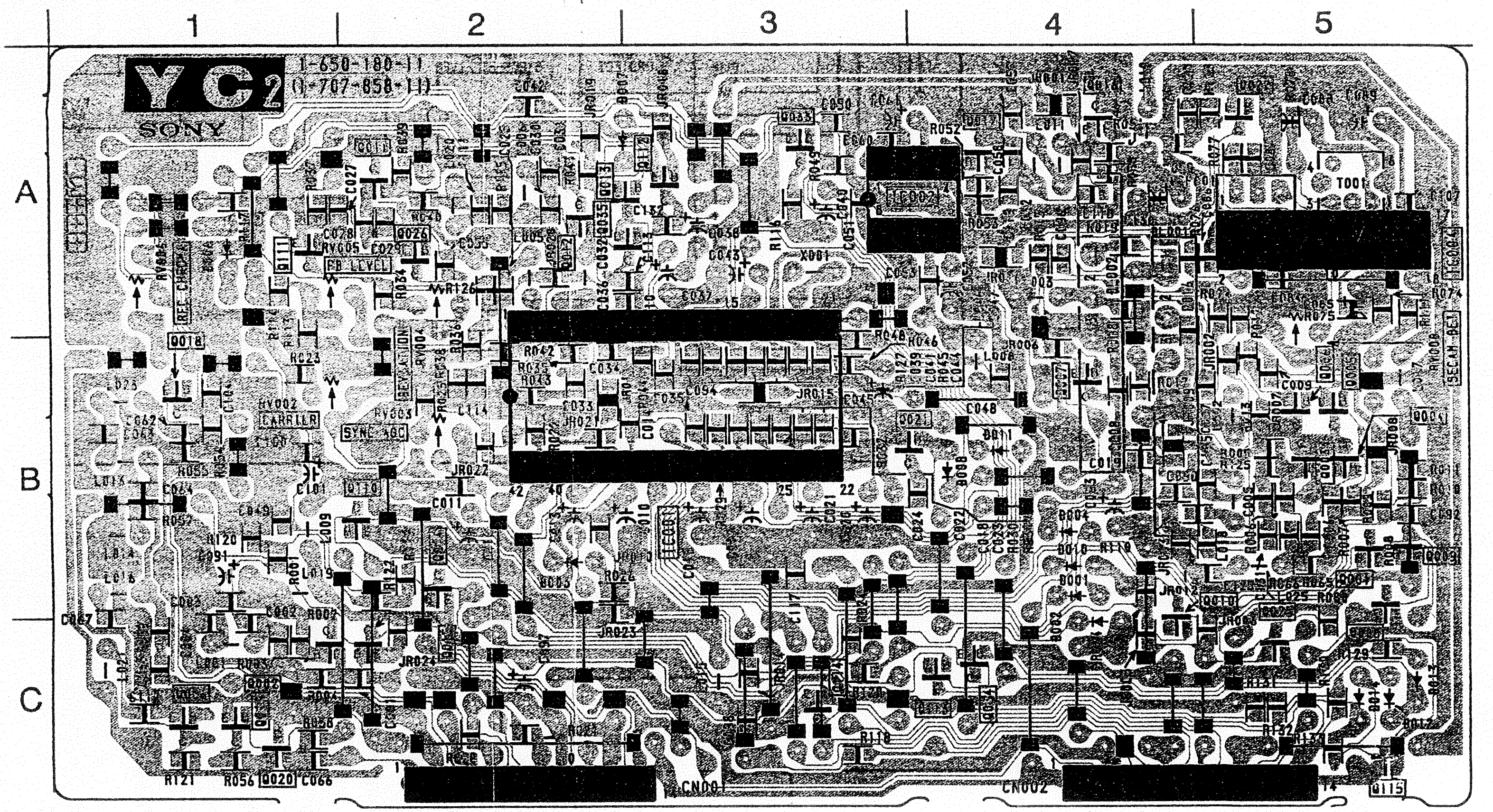
• YC2 BOARD

IC	
IC001	B – 3
IC002	A – 4
IC003	A – 5

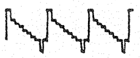
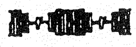
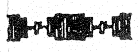
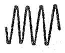
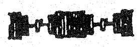
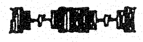
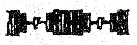
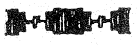
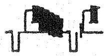
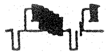
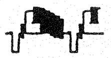
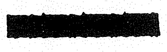
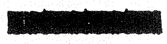
TRANSISTOR	
Q002	C – 1
Q003	B – 5
Q004	B – 5
Q005	B – 5
Q006	B – 5
Q007	B – 4
Q008	B – 5
Q009	B – 5
Q011	A – 2
Q012	A – 2
Q013	A – 3
Q014	B – 2
Q015	B – 2
Q016	A – 4
Q017	A – 4
Q018	B – 1
Q020	C – 1
Q022	A – 5
Q033	A – 3
Q034	C – 4
Q035	A – 3
Q110	B – 2
Q111	A – 1
Q112	A – 3
Q113	C – 4
Q115	C – 5

DIODE	
D001	B – 4
D002	C – 4
D003	B – 2
D004	B – 4
D006	A – 1
D007	A – 3
D008	B – 4
D011	B – 4
D012	C – 5
D013	C – 5

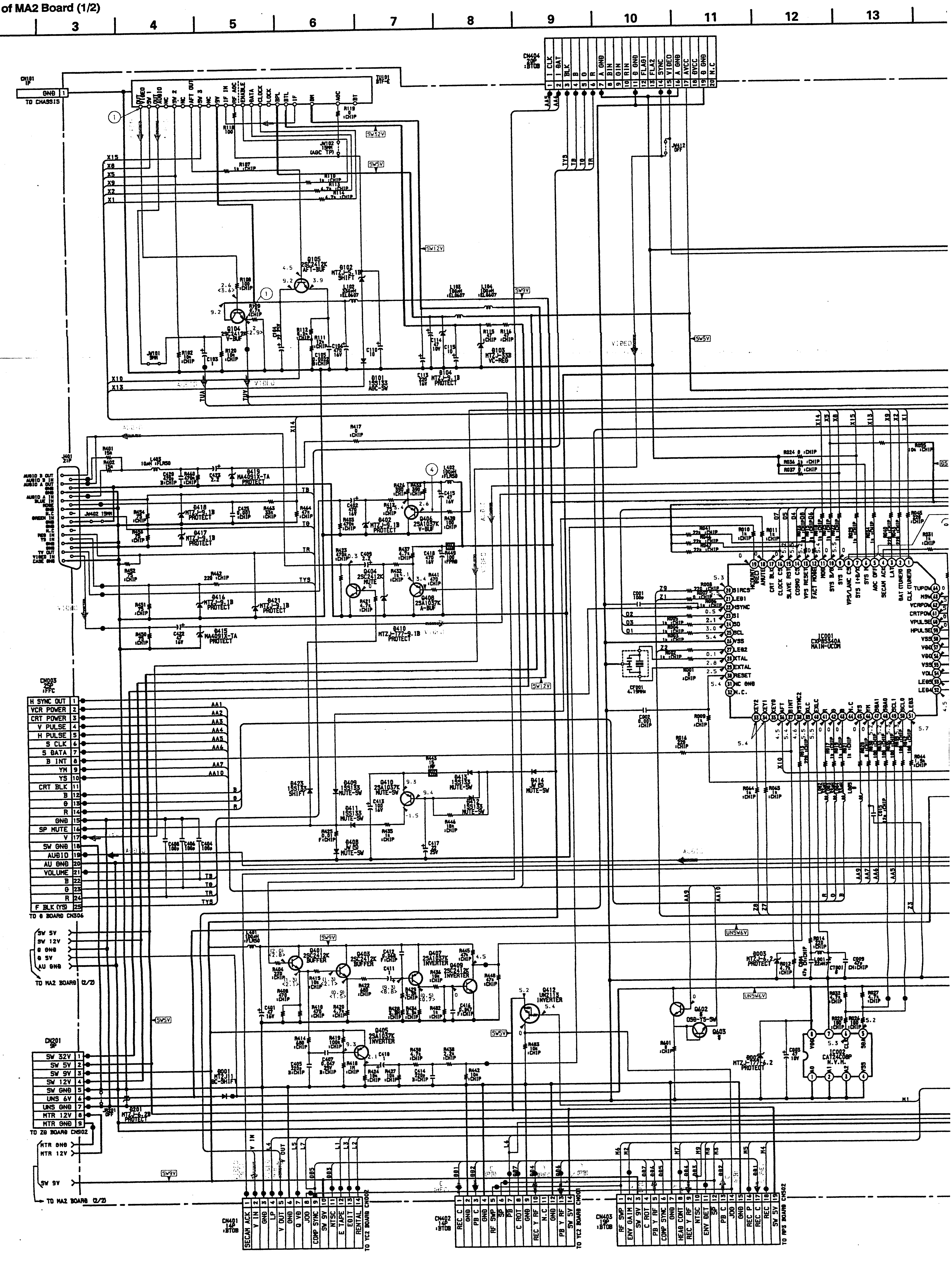
VARIABLE RESISTOR	
RV002	B – 1
RV003	B – 2
RV004	B – 2
RV005	A – 1
RV006	A – 1
RV008	A – 5


1
2
3
4
5
A
B
C
YC2
SONY
1-650-180-11
(1-707-858-11)
REC CHROMA
FB LEVEL
CARRIER
SYNC AGC
DEVIATION
SECAM DET
IC001
IC002
T001
X001
CN001
CN002

• YC2 BOARD WAVEFORMS

① PB  0.5 Vp-p (H)	② REC  0.4 Vp-p (H)	② PB  0.2 Vp-p (H)	③  0.6 Vp-p (4.43MHz)	④ PB  1.2 Vp-p (H)
⑤ PB  0.2 Vp-p (H)	⑥ PB  0.4 Vp-p (H)	⑦ PB  0.6 Vp-p (H)	⑧ REC  2.5 Vp-p (H)	⑧ PB  Vp-p (H)
⑨ REC  1.2 Vp-p (H)	⑩ PB  0.3 Vp-p (H)	⑪ REC  1.0 Vp-p (H)		

of MA2 Board (1/2)



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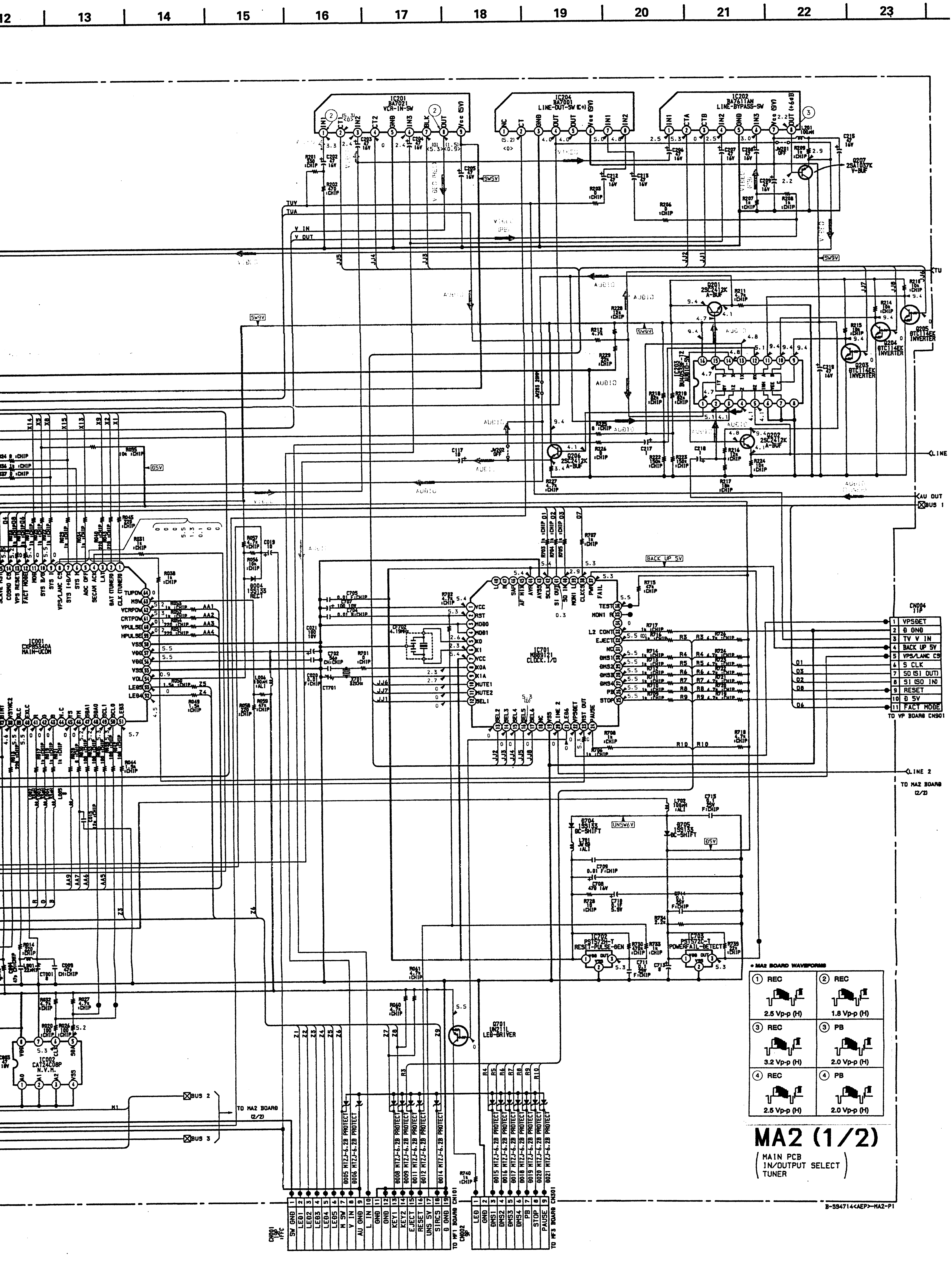
12
13
CN101 1P
GND
TO CHASSIS
TU101 BTF-E
CN404 20P :BTOB
I CLK
I DATA
BLK
B
G
R
A GND
B IN
G IN
R IN
G GND
FLAG1
FLAG2
SYNC
VIDEO
A GND
AVCC
DVCC
D GND
N.C
Q105 2SC2412K AFT-BUF
D102 MTZJ-5.1B SHIFT
Q104 2SC2412K V-BUF
D103 MTZJ-33B VC-REG
D101 1SS133 AGC-SW
D104 MTZJ-9.1B PROTECT
SW32V
SW5V
SW12V
SW9V
J401 21P
D419 MA4091X-TA PROTECT
D418 MTZJ-9.1B PROTECT
D417 MTZJ-9.1B PROTECT
D416 MTZJ-9.1B PROTECT
D421 MTZJ-9.1B PROTECT
D415 MA4091X-TA PROTECT
Q402 MTZJ-9.1B PROTECT
Q406 2SA1037K V-BUF
Q404 2SC2412K MUTE
Q408 2SA1037K A-BUF
D410 MTZJ-T77-9.1B PROTECT
CN003 25P :FFC
H SYNC OUT
VCR POWER
CRT POWER
V PULSE
H PULSE
S CLK
S DATA
B INT
YM
YS
CRT BLK
B
G
R
GND
SP MUTE
V
SW GND
AUDIO
AU GND
VOLUME
B
G
R
F BLK (YS)
TO G BOARD CN306
SW 5V
SW 12V
G GND
G 5V
AU GND
TO MA2 BOARD (2/2)
D423 1SS133 SHIFT
D409 1SS133 MUTE-SW
Q410 2SA1037K MUTE-SW
D413 1SS133 MUTE-SW
D414 MUTE-SW
D411 1SS133 MUTE-SW
D412 1SS133 MUTE-SW
D408 MUTE-SW
IC001 CXP85340A MAIN-UCOM
CF001 4.19MHz
Q401 2SC2412K BUFFER
Q403 2SC2412K BUFFER
Q407 2SA1037K INVERTER
Q409 2SC2412K INVERTER
Q412 UN2113 INVERTER
Q405 2SA1037K INVERTER
Q402 DSB-YS-SW
Q403
D003 MTZJ-6.2 PROTECT
D002 MTZJ-T77-6.2 PROTECT
IC002 CAT24C08P N.V.M.
CN201 9P
SW 32V
SW 5V
SW 9V
SW 12V
SW GND
UNS 6V
UNS GND
MTR 12V
MTR GND
TO Z0 BOARD CN902
D001 MTZJ11 BC-SHIFT
D201 MTZJ-6.2B PROTECT
MTR GND
MTR 12V
SW 9V
TO MA2 BOARD (2/2)
UNSW6V
CN401 14P :BTOB
SECAM ACK
V IN
GND
LP
V OUT
GND
Q VD
COMP SYNC
SW 9V
NTSC
E TAPE
EDIT
RENTAL
TO YC2 BOARD CN002
CN402 14P :BTOB
REC C
GND
PB C
GND
RF SWP
PB Y
PB
C ROT
GND
REC Y RF
N.C
GND
PB Y RF
SW 5V
TO YC2 BOARD CN001
CN403 19P :BTOB
RF SWP
ENV GAIN
SW 9V
C ROT
PB Y RF
COMP SYNC
GND
HEAD CONT
REC Y RF
NTSC
ENV DET
SP
PB C
JOG
REC P
REC C
GND
SW 5V
TO RP3 BOARD CN502


12
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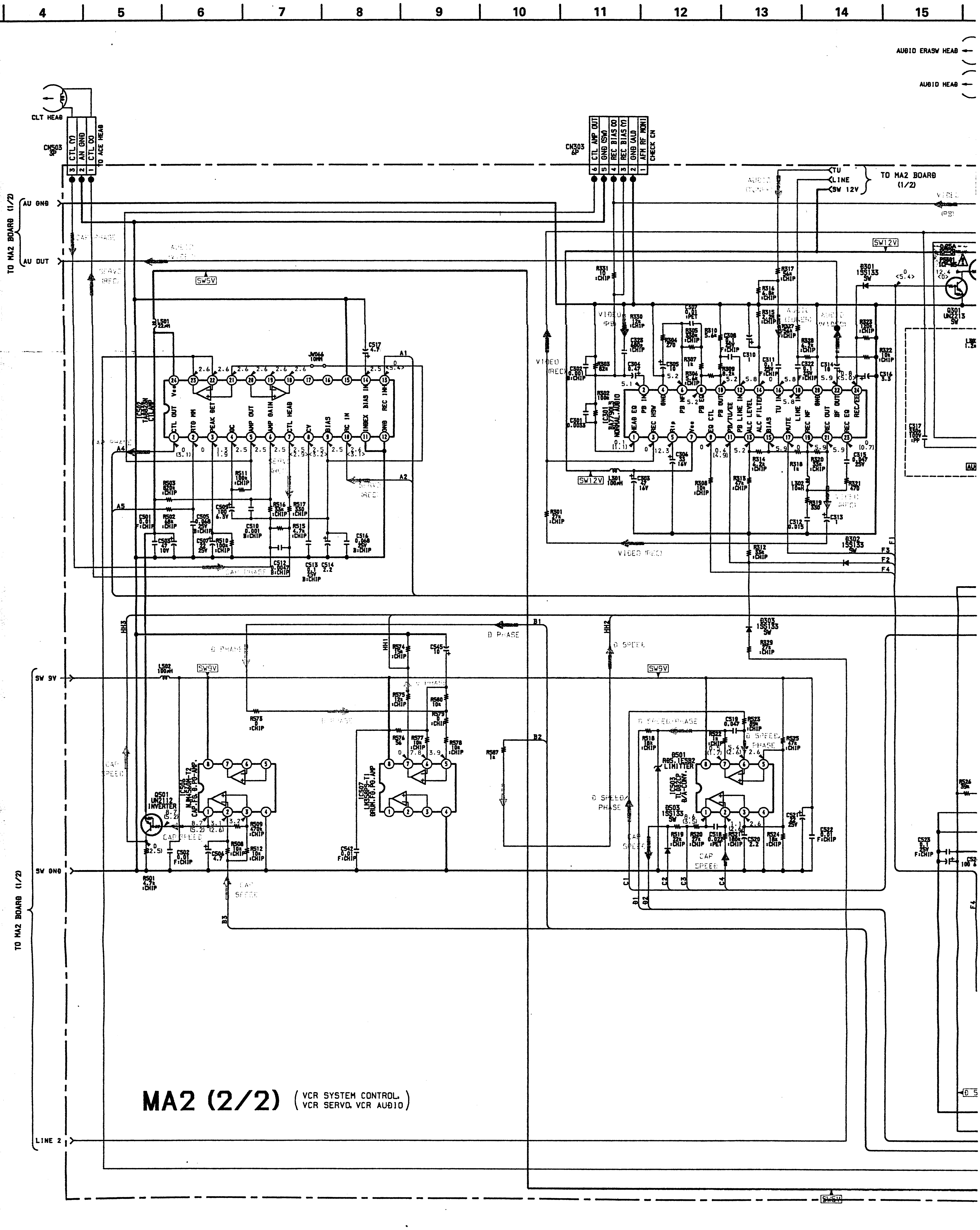
23
IC201 BA7021 VCR-IN-SW
IC204 BA7001 LINE-OUT-SW (C4)
IC202 BA7611AN LINE-BYPASS-SW
Q207 2SA1037K V-BUF
Q201 2SC2412K A-BUF
Q205 DTC114EK INVERTER
Q204 DTC114EK INVERTER
Q203 DTC114EK INVERTER
IC203 BU4053BF-T2 AUDIO-SW
Q202 2SC2412K A-BUF
Q206 2SC2412K A-BUF
IC001 CXP85340A MAIN-UCOM
IC701 MB89121 CLOCK I/O
IC002 CAT24C08P N.V.M.
IC702 PST572H-T RESET-PULSE-GEN
IC703 PST572C-T POWERFAIL-DETECT
Q701 UN2111 LED-DRIVER
D004 1SS133 RECT
D704 1SS133 DC-SHIFT
D705 1SS133 DC-SHIFT
CN004 11P
1 VPSDET
2 D GND
3 TV V IN
4 BACK UP 5V
5 VPS/LANC CS
6 S CLK
7 SO (SI OUT)
8 SI (SO IN)
9 RESET
10 D 5V
11 FACT MODE
TO VP BOARD CN901
LINE
AU OUT
BUS 1
LINE 2
TO MA2 BOARD (2/2)
BUS 2
BUS 3
TO MA2 BOARD (2/2)
CN001 19P
SW GND
LED1
LED2
LED3
LED4
LED5
M SW
V IN
AU GND
L IN
D GND
KEY1
KEY2
EJECT
RESET
UNS 5V
SIRCS
D GND
TO MF1 BOARD CN101
CN002 9P
LED
GND
DMS1
DMS2
DMS3
DMS4
PB
STOP
PAUSE
TO MF3 BOARD CN501
BACK UP 5V
SW9V
SW5V
D5V
UNSW6V
TUY
TUA
V IN
V OUT
• MA2 BOARD WAVEFORMS
① REC 2.5 Vp-p (H)
② REC 1.8 Vp-p (H)
③ REC 3.2 Vp-p (H)
③ PB 2.0 Vp-p (H)
④ REC 2.5 Vp-p (H)
④ PB 2.0 Vp-p (H)
B-594714<AEP>-MA2-P1

MA2 (1/2)

(MAIN PCB
IN/OUTPUT SELECT
TUNER)

(5) Schematic Diagram of MA2 Board (2/2)


4
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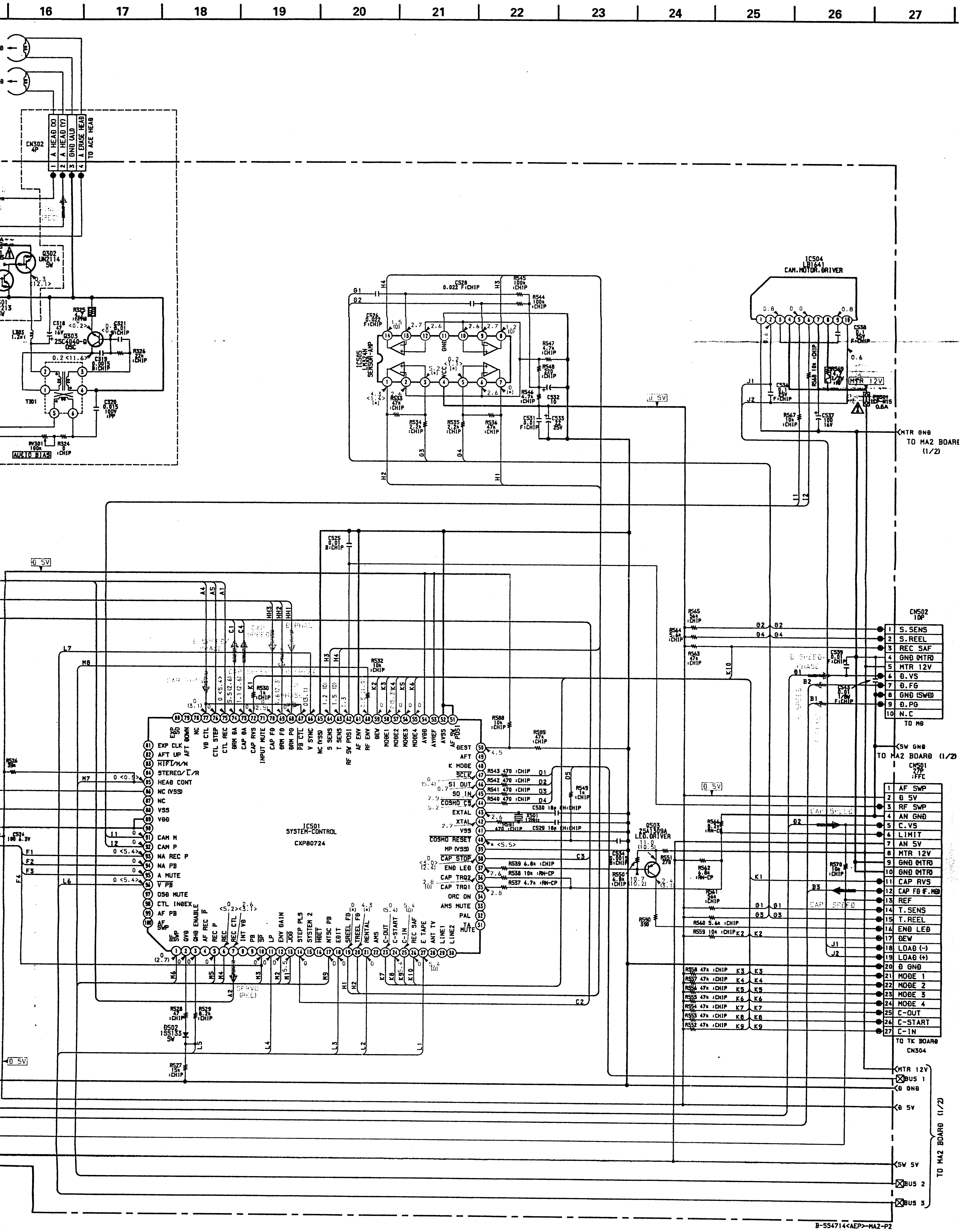
15
CLT HEAD
CN503 3P
CTL (Y)
AN GND
CTL (X)
TO ACE HEAD
CN303 6P
CTL AMP OUT
GND (SW)
REC BIAS (X)
REC BIAS (Y)
GND (AU)
AFM RF MONI
CHECK CN
AUDIO ERASW HEAD
AUDIO HEAD
TU
LINE
SW 12V
TO MA2 BOARD (1/2)
AU GND
AU OUT
SW5V
SW9V
SW12V
IC502 TA8052N CTL AMP
IC301 BA7790LS NORMAL AUDIO
IC506 M-N4560H-T2 CAP. FG. & PG. AMP.
IC507 LM358PS-T1 DRUM. FG. PG. AMP
IC503 TL082CP B/A-CONV.
Q501 UN2112 INVERTER
Q301 UN2213 SW
D301 1SS133 SW
D302 1SS133 SW
D303 1SS133 SW
D503 1SS133 SW
D501 RD5.1ESB2 LIMITER
VIDEO (REC)
VIDEO (PB)
CAP PHASE
CAP SPEED
D PHASE
D SPEED
D SPEED/PHASE
SERVO (REC)
HH1
HH2
HH3
A1
A2
A4
A5
B1
B2
B3
C1
C2
C3
C4
D1
D2
F1
F2
F3
F4
SW 9V
SW GND
LINE 2
MA2 (2/2)
VCR SYSTEM CONTROL,
VCR SERVO, VCR AUDIO

Schematic diagram

← MA2 board (1/2)

Schematic diagram

MA2 board (2/2) →


16
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22
23
24
25
26
27
CN302 4P
A HEAD (X)
A HEAD (Y)
GND (AU)
A ERASE HEAD
TO ACE HEAD
Q302 UN2114 SW
Q303 2SC4040-Q OSC
T301
RV301 100k
AUDIO BIAS
R324
R325
R326 22k
C318 47 16V
C319 0.0015
C320 0.015 100V
C321 0.01
L303
IC505 LM324M SENSOR-AMP
C526 0.022 F:CHIP
C528 0.022 F:CHIP
R545 100k :CHIP
R544 100k :CHIP
R547 4.7k :CHIP
R548 220 :CHIP
R546 4.7k :CHIP
C532 10
C531 0.01 F:CHIP
C533 22 25V
R533 47k :CHIP
R534 2.2k :CHIP
R535 2.2k :CHIP
R536 47k :CHIP
IC504 LB1641 CAM.MOTOR.DRIVER
C538 0.1 25V F:CHIP
C534 0.1 25V F:CHIP
R567 10k :CHIP
C537 100 16V
PS501 ICP-N15 0.6A
MTR 12V
D 5V
MTR GND
TO MA2 BOARD (1/2)
C525 0.01 B:CHIP
IC501 SYSTEM-CONTROL CXP80724
EXP SO
AFT DOWN
VD CTL
CTL STEP
CTL REC
DRM GA
CAP GA
CAP RVS
INPUT MUTE
CAP FG
DRM FG
DRM PG
PB CTL
V SYNC
NC (VSS)
S SENS
T SENS
RF SW POS1
AF ENV
RF ENV
DEW
MODE1
MODE2
MODE3
MODE4
AVDD
AVREF
AVSS
AF SW POS1
DEST
AFT
K MODE
SCLK
SI OUT
SO IN
COSMO CS
EXTAL
XTAL
VSS
COSMO RESET
MP (VSS)
CAP STOP
END LED
CAP TRQ2
CAP TRQ1
ORC ON
AMS MUTE
PAL
TA MUTE
EXP CLK
AFT UP
HIFI/N/N
STEREO/L/R
HEAD CONT
NC (VSS)
NC
VSS
VDD
CAM M
CAM P
NA REC P
NA PB
A MUTE
V PB
DSB MUTE
CTL INDEX
AF PB
AF SWP
RF SWP
DVB
DHB ENABLE
AF REC P
REC
REC CTL
INT VD
PB
SP
LP
ENV GAIN
JOG
STEP PLS
SYSTEM 2
NTSC PB
EDIT
SREEL FG
TREEL FG
RENTAL
AMS
C-OUT
C-START
C-IN
REC SAF
E TAPE
ANT TV
LINE1
LINE2
R530 1k :CHIP
R532 10k :CHIP
R588 10k :CHIP
R589 47k :CHIP
R543 470 :CHIP
R542 470 :CHIP
R541 470 :CHIP
R540 470 :CHIP
R549 1k :CHIP
C530 18p CH:CHIP
X501
R591
C529 18p CH:CHIP
R539 6.8k :CHIP
R538 10k :RN-CP
R537 4.7k :RN-CP
C534 0.0015 B:CHIP
R550 6.8k :CHIP
Q503 2SA1309A LED.DRIVER
R551 270
R590 390
R528 27 :CHIP
R529 8.2k :CHIP
D502 1SS133 SW
R527 15k :CHIP
R526 39k
C524 100 6.3V
R565 56k :CHIP
R564 5.6k :CHIP
R563 47k :CHIP
R566 8.2k :RN-CP
R562 6.8k :RN-CP
R561 56k :CHIP
R560 5.6k :CHIP
R559 10k :CHIP
R558 47k :CHIP
R557 47k :CHIP
R556 47k :CHIP
R555 47k :CHIP
R554 47k :CHIP
R553 47k :CHIP
R552 47k :CHIP
R570 10k :CHIP
C539 0.01 F:CHIP
C543 0.01 F:CHIP
CN502 10P
1 S.SENS
2 S.REEL
3 REC SAF
4 GND (MTR)
5 MTR 12V
6 D.VS
7 D.FG
8 GND (SWD)
9 D.PG
10 N.C
TO MD
SW GND
TO MA2 BOARD (1/2)
CN501 27P :FFC
1 AF SWP
2 D 5V
3 RF SWP
4 AN GND
5 C.VS
6 LIMIT
7 AN 5V
8 MTR 12V
9 GND (MTR)
10 GND (MTR)
11 CAP RVS
12 CAP FG (F.MD)
13 REF
14 T.SENS
15 T.REEL
16 END LED
17 DEW
18 LOAD (-)
19 LOAD (+)
20 D GND
21 MODE 1
22 MODE 2
23 MODE 3
24 MODE 4
25 C-OUT
26 C-START
27 C-IN
TO TK BOARD CN304
MTR 12V
BUS 1
D GND
D 5V
SW 5V
BUS 2
BUS 3
TO MA2 BOARD (1/2)
SERVO (REC)
CAP SPEED
D SPEED/PHASE
D PHASE
B-SS4714<AEP>-MA2-P2

MA2

MAIN PCB, IN/OUTPUT SELECT
TUNER, VCR SYSTEM CONTROL,
VCR SERVO, VCR AUDIO

- MA2 Board -

- **MA2 BOARD**

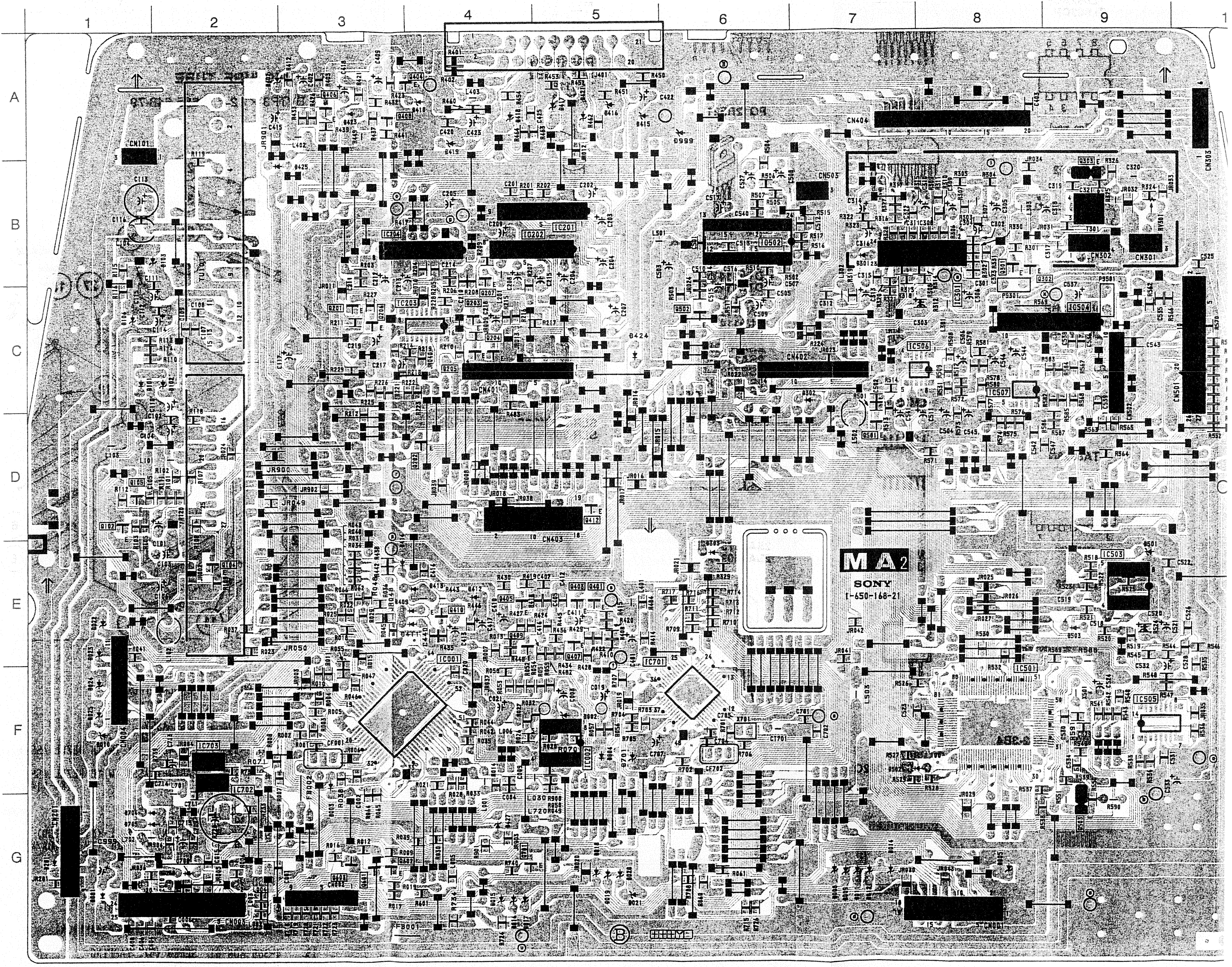
IC	
IC001	D – 3
IC002	D – 4
IC201	B – 3
IC202	B – 3
IC203	B – 3
IC204	B – 3
IC301	B – 6
IC501	D – 6
IC502	B – 5
IC503	C – 6
IC504	B – 6
IC505	D – 7
IC506	B – 5
IC507	B – 6
IC701	D – 4
IC702	E – 2
IC703	D – 1

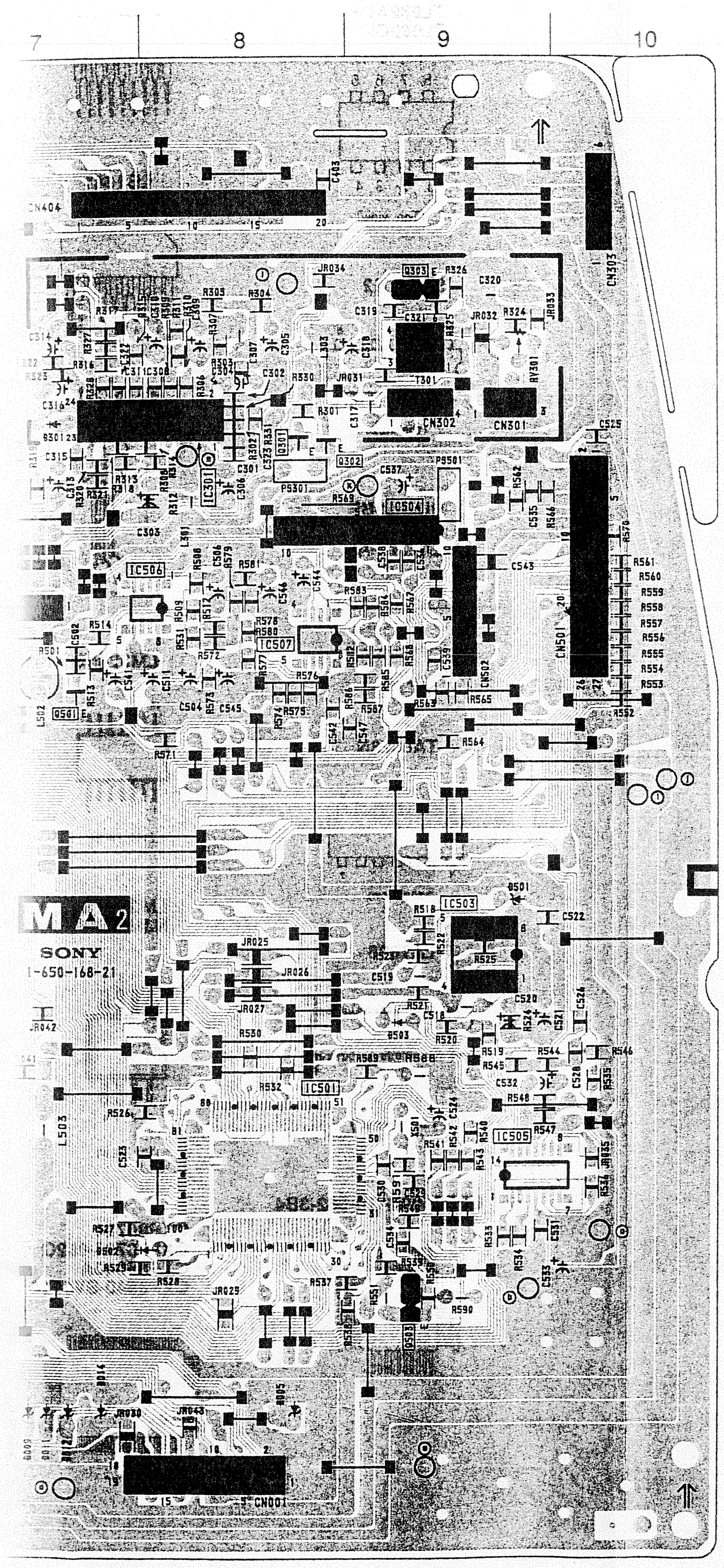
TRANSISTOR	
Q104	C – 2
Q105	C – 1
Q201	B – 2
Q202	C – 3
Q203	B – 3
Q204	B – 3
Q205	B – 3
Q206	B – 2
Q207	B – 3
Q301	B – 6
Q302	B – 6
Q303	A – 6
Q401	D – 4
Q403	D – 4
Q404	A – 3
Q405	D – 3
Q406	A – 2
Q407	D – 3
Q408	A – 3
Q409	D – 3
Q410	D – 3
Q412	C – 4
Q501	C – 5
Q503	E – 6
Q602	E – 3
Q603	E – 2
Q701	E – 3

DIODE	
D001	E – 1
D002	D – 4
D003	E – 2
D004	D – 4
D005	E – 6
D008	E – 5
D009	E – 5
D011	E – 5
D012	E – 5
D014	E – 5
D015	E – 3
D016	E – 3
D017	E – 3
D018	E – 4
D019	E – 4
D020	E – 4
D021	E – 4
D101	B – 1
D102	B – 1
D103	B – 1
D104	B – 1
D201	E – 1
D301	B – 5
D302	C – 5
D303	C – 4
D402	A – 2
D409	D – 3
D410	A – 3
D411	D – 3
D412	D – 3
D413	D – 3
D414	C – 3
D415	A – 4
D416	A – 4
D417	A – 3
D418	A – 3
D419	A – 3
D421	A – 4
D423	A – 2
D501	C – 7
D502	E – 5
D503	D – 6
D704	E – 1
D705	E – 1

TUNER	
TU101	B – 1

CRYSTAL	
X501	D – 6
X701	D – 4


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
MA2
SONY
1-650-168-21
CN101
CN301
CN302
CN303
CN401
CN402
CN403
CN404
CN501
CN505
TU101
IC001
IC002
IC201
IC202
IC203
IC204
IC301
IC501
IC502
IC503
IC504
IC505
IC506
IC507
IC701
IC702
IC703


7
8
9
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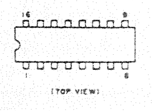
CN406
CN303
CN302
CN301
CN501
IC501
IC503
IC504
IC505
IC506
IC507
JR025
JR026
JR027
JR029
M A 2
SONY
1-650-168-21
CN001

5-5. SEMICONDUCTORS

(1) TV Section


16
9
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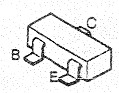
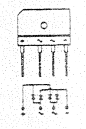
(TOP VIEW)

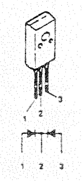
BA5412-S
CXA1315M



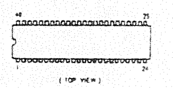
DTC144EK
2SB709A-R
2SC2712-YG
2SC2712G
2SD601A-R
2SD601A-S



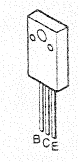
D4SB60L
D4SB60L-F



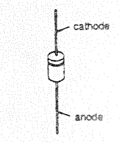
D1OSC4M



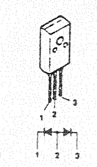
CXA1024S
CXA1213BS



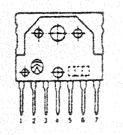
2SC4834N


cathode
anode

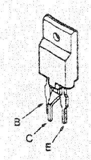
R2M



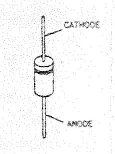
D1OSC4MR



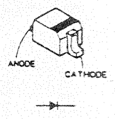
LA7830



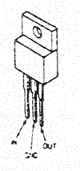
2SD1877-CA
2SD1877S-SONT-CA


CATHODE
ANODE

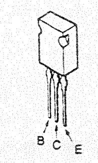
D1NS4-TR2
DINS6
EL1Z
RGP10G


ANODE
CATHODE

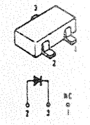
MA110



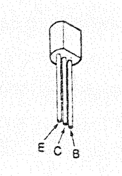
NJM78M09FA
TA7809S



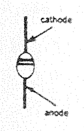
2SB1496EF



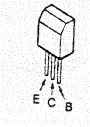
1S2837
1SS184



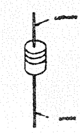
2SA1091-O


cathode
anode

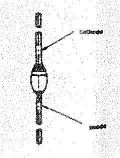
GP08D



2SC3209LK
2SD774-34

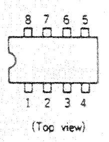

cathode
anode

D1N20R
MTZJ-11
MTZJ-5.1
MTZJ-5.1B
MTZJ-5.6B
RD11ESB2
RD5.1ESB1
RD5.1ESB2
RD5.6ESB2
1SS119
1SS135E
1SS168

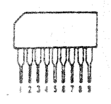

cathode
anode

ES1F-LF-G2
RGP02-1

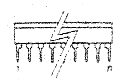
(2) Video Section


8 7 6 5
1 2 3 4
(Top view)

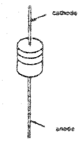
CAT24C08P
LC8992
TL082ACP
TL082CP



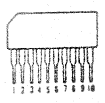
BA7021



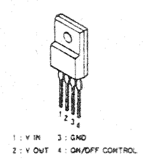
BA7001
BA7611AN


cathode
anode

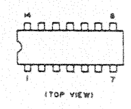
MTZJ-11
MTZJ-33B
MTZJ-5.1
MTZJ-6.2
MTZJ-6.2B
RB441Q
RD11ESB2
RD5.1ESB1
RD5.1ESB2
1SS119
1SS133


1 2 3 4 5 6 7 8 9 10

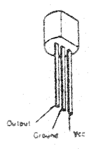
LB1641


1 2 3 4
1 : V IN 3 : GND
2 : V OUT 4 : ON/OFF CONTROL

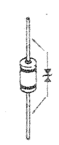
PQ12RF21


14
8
1
7
(TOP VIEW)

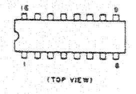
SDA5642


Output
Ground
Vcc

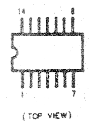
PST572H



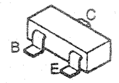
RD9.IE-W


16
9
1
8
(TOP VIEW)

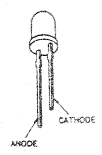
BU4053BF
LA7376
LA7376-A


14
8
1
7
(TOP VIEW)

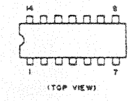
LM324NS



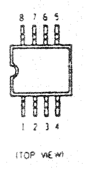
DTA114YK
DTC114EK
LA211L
UN2112
UN2114
UN211L
2SA1037K
2SA1162-G
2SB709A-R
2SC2412K
2SC2412K-QR
2SD601A-R
2SD601A-S


CATHODE
ANODE

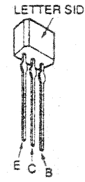
SLR-305DC3F
SLR-305VC3F


14
8
1
7
(TOP VIEW)

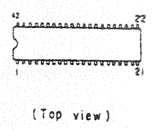
TA8823N


8 7 6 5
1 2 3 4
(TOP VIEW)

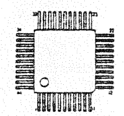
LM358PS
NJM4560M


LETTER SIDE
E
C
B

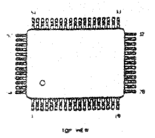
2SA1175-HFE
2SA1309A-R


42
22
1
21
(Top view)

LA7396



UPD75004-GB-562-3B4



CXP80724
CXP80724-082Q
CXP85340A
CXP8540-SV4714

SECTION 6
EXPLODED VIEWS (TV SECTION)

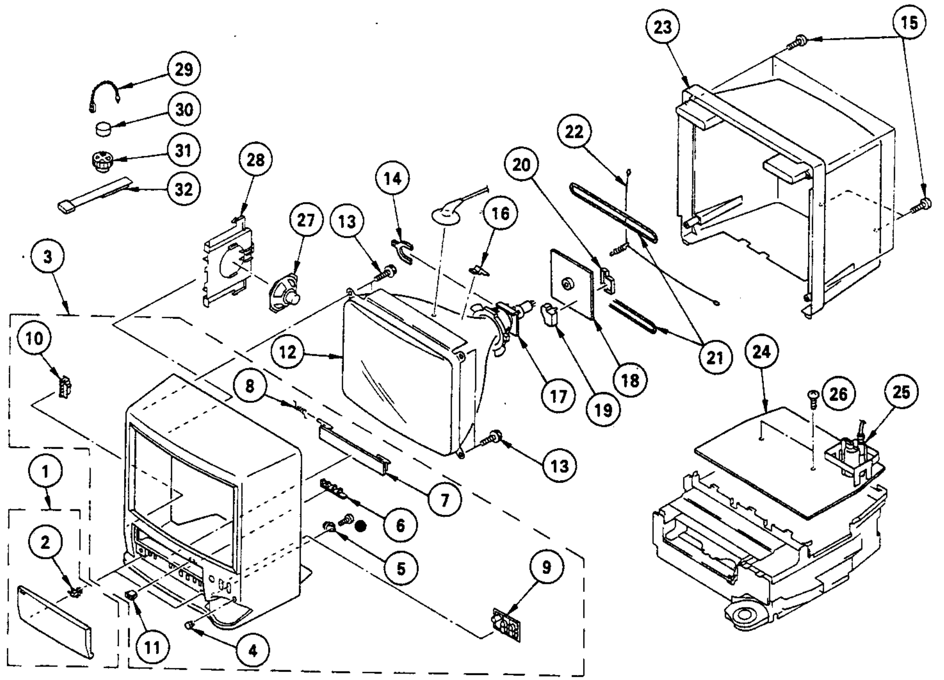
NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

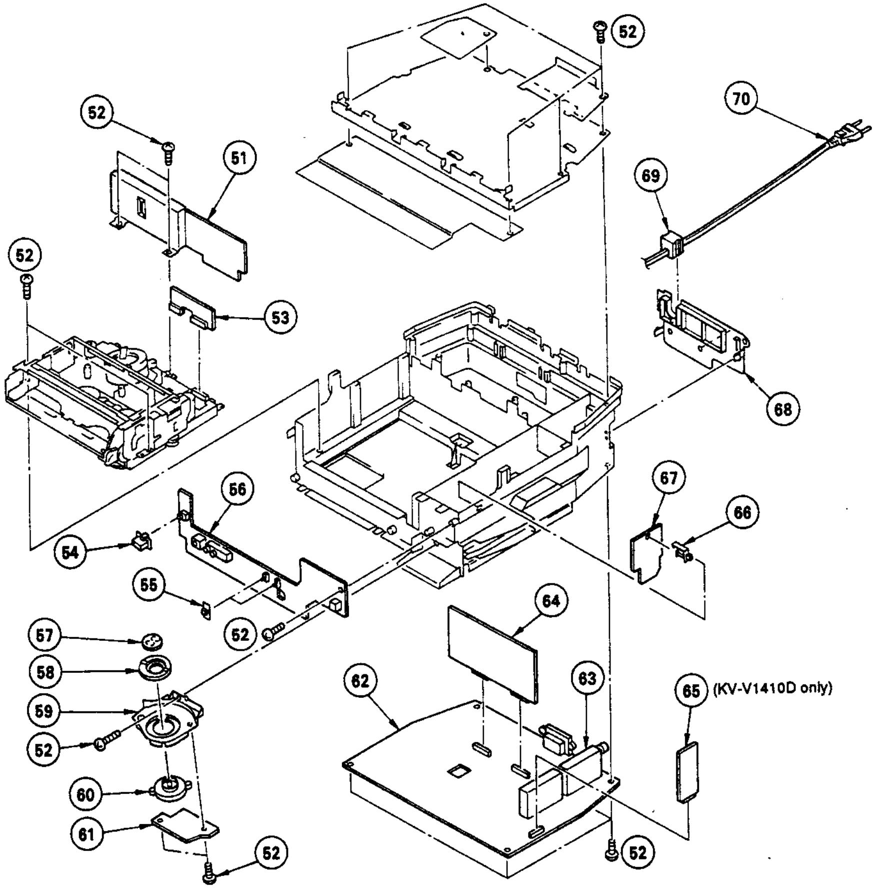
6-1. PICTURE TUBE

●: BVTP3 × 12 7-685-648-79



REF.NO.	PART NO.	DESCRIPTION	REMARK
1	X-4031-394-3	DOOR ASSY	2
2	3-703-035-12	SHAFT, LID	
3	X-4031-393-1	CABINET ASSY (WITH BEZEL ASSY) (KV-V1410D)	4-11
	X-4031-396-1	CABINET ASSY (WITH BEZEL ASSY) (KV-V1410A/V1410E)	4-11
4	4-042-008-01	FILTER, REMOTE	
5	4-919-393-51	DAMPER	
6	4-042-006-01	BUTTON, CONTROL (KV-V1410D)	
	4-042-006-11	BUTTON, CONTROL (KV-V1410A/V1410E)	
7	4-042-012-21	DOOR, CASSETTE	
8	3-950-962-01	SPRING, FL	
9	4-042-005-31	BUTTON, MULTI	
10	4-042-007-01	GUIDE (A), LIGHT	
11	*3-736-779-01	MAGNET	
12	⚠ 8-736-555-05	PICTURE TUBE (A34JBU10X)	
13	4-365-808-01	SCREW (5), TAPPING	
14	1-452-277-00	MAGNET, BMC	
15	4-039-358-01	SCREW (4X16), (+) BV TAPPING	
16	3-704-495-01	SPACER, DY	
17	⚠ 1-451-249-31	DEFLECTION YOKE Y14NDA2	
18	*A-1331-343-A	C BOARD, COMPLETE	
19	*4-374-912-01	COVER (MAIN), CV VOL	
20	*4-374-913-01	COVER (REAR LID), CV VOL	
21	⚠ 1-426-145-21	COIL, DEGAUSSING	
22	4-369-318-21	SPRING, TENSION	
23	*X-4031-706-2	COVER ASSY, REAR	
24	*A-1346-177-A	D2 BOARD, COMPLETE	
25	⚠ 1-453-119-11	TRANSFORMER ASSY, FLYBACK (NX-2820A1)	
26	4-039-356-01	SCREW (3X12), (+) BV TAPPING	
27	1-504-465-11	SPEAKER (8CM)	
28	4-042-017-01	BRACKET, SPEAKER	
29	4-308-870-00	CLIP, LEAD WIRE	
30	1-452-032-00	MAGNET, DISK; 10MM ϕ	
31	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ϕ	
32	X-4309-608-0	PERMALLOY ASSY, CONVERGENCE	

6-2. MAIN BOARDS ASSEMBLY



REF.NO.	PART NO.	DESCRIPTION	REMARK
51	*A-1394-557-A	RP3 BOARD, COMPLETE	
52	4-039-356-01	SCREW (3×12), (+)BV TAPPING	
53	*1-650-181-11	TK BOARD	
54	4-042-025-01	BUTTON, POWER	
55	4-042-018-21	BUTTON, SLIDE	
56	*A-1301-920-A	MF1 BOARD, COMPLETE	
57	X-4031-445-1	BUTTON ASSY, FUNCTION	
58	3-953-514-21	RING, SHUTTLE	
59	X-4031-631-1	COVER ASSY, DMS	
60	1-572-662-61	SWITCH, ROTARY	
61	*1-650-173-11	MF3 BOARD	
62	*A-1306-446-A	MA2 BOARD, COMPLETE	
63	1-693-233-11	TUNER, VIF (BTF-2C404)	
64	*A-1394-504-A	YC2 BOARD, COMPLETE	
65	*A-1347-086-A	VP BOARD, COMPLETE (KV-V1401D)	
66	*3-682-082-00	HOLDER (S), PCB	
67	*A-1390-426-A	ZD BOARD, COMPLETE	
68	*4-043-475-01	TERMINAL BOARD	
69	⚠.4-335-154-02	GROMMET, AC CORD	
70	⚠.1-765-286-11	CORD, POWER 2.5A/250V	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 7
ELECTRICAL PARTS LIST (TV SECTION)

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

When indicating parts by reference number, please include the board name.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

RESISTORS
- All resistors are in ohms
- F : nonflammable

REF.NO.	PART NO.	DESCRIPTION				REMARK
	*A-1331-343-A	C BOARD, COMPLETE *****************				
	*4-374-912-01	COVER (MAIN), CV VOL				
	*4-374-913-01	COVER (REAR LID), CV VOL				

<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
C703	1-162-116-00	CERAMIC	680PF	10%	2KV	
C708	1-102-111-00	CERAMIC	270PF	10%	50V	
C712	1-102-109-00	CERAMIC	180PF	10%	50V	
C713	1-102-110-00	CERAMIC	220PF	10%	50V	
C714	1-126-233-11	ELECT	22MF	20%	25V	
C715	1-164-085-11	CERAMIC	0.001MF	10%	50V	
C716	1-126-233-11	ELECT	22MF	20%	25V	
C720	1-162-115-00	CERAMIC	330PF	10%	2KV	

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
CN701	1-695-915-11	TAB (CONTACT)				
CN703	*1-564-508-11	PLUG, CONNECTOR 5P				

<SOCKET>

REF.NO.	PART NO.	DESCRIPTION				REMARK
CRT701⚠	1-526-819-11	SOCKET, PICTURE TUBE				

<COIL>

REF.NO.	PART NO.	DESCRIPTION				REMARK
L701	1-408-423-00	INDUCTOR	150UH			

<TRANSISTOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
Q704	8-729-906-70	TRANSISTOR BF871				
Q705	8-729-906-70	TRANSISTOR BF871				
Q706	8-729-906-70	TRANSISTOR BF871				
Q708	8-729-230-49	TRANSISTOR 2SC2712-YG				
Q709	8-729-200-17	TRANSISTOR 2SA1091-O				

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
R701	1-202-883-11	SOLID	680K	20%	1/2W	
R702	1-202-838-00	SOLID	100K	20%	1/2W	
R703	1-202-719-00	SOLID	1M	20%	1/2W	
R704	1-202-842-11	SOLID	220K	20%	1/2W	
R706	1-202-824-00	SOLID	3.3K	20%	1/2W	
R707	1-202-824-00	SOLID	3.3K	20%	1/2W	
R708	1-202-824-00	SOLID	3.3K	20%	1/2W	
R709	1-215-899-11	METAL OXIDE	15K	5%	2W	F
R710	1-216-370-11	METAL OXIDE	1.2	5%	2W	F
R711	1-215-899-11	METAL OXIDE	15K	5%	2W	F
R713	1-215-899-11	METAL OXIDE	15K	5%	2W	F
R714	1-247-807-31	CARBON	100	5%	1/4W	
R717	1-249-413-11	CARBON	470	5%	1/4W	
R719	1-247-807-31	CARBON	100	5%	1/4W	
R720	1-249-429-11	CARBON	10K	5%	1/4W	
R722	1-249-442-11	CARBON	510	5%	1/4W	
R723	1-249-413-11	CARBON	470	5%	1/4W	
R730	1-247-807-31	CARBON	100	5%	1/4W	
R732	1-249-415-11	CARBON	680	5%	1/4W	
R749	1-249-423-11	CARBON	3.3K	5%	1/4W	
R750	1-249-424-11	CARBON	3.9K	5%	1/4W	
R751	1-249-426-11	CARBON	5.6K	5%	1/4W	
R752	1-249-421-11	CARBON	2.2K	5%	1/4W	
R754	1-249-419-11	CARBON	1.5K	5%	1/4W	
R755	1-249-413-11	CARBON	470	5%	1/4W	
R756	1-249-411-11	CARBON	330	5%	1/4W	
R757	1-249-409-11	CARBON	220	5%	1/4W	
R758	1-249-421-11	CARBON	2.2K	5%	1/4W	
R759	1-249-421-11	CARBON	2.2K	5%	1/4W	
R760	1-249-421-11	CARBON	2.2K	5%	1/4W	

<VARIABLE RESISTOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
RV701	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M				
RV702⚠	1-230-619-11	RES, ADJ, METAL GLAZE 110M				
RV703	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M				
RV704	1-241-628-11	RES, ADJ, CARBON 2.2K				
RV705	1-241-763-11	RES, ADJ, CARBON 4.7K				
RV706	1-241-763-11	RES, ADJ, CARBON 4.7K				
RV707	1-241-763-11	RES, ADJ, CARBON 4.7K				
RV708	1-241-763-11	RES, ADJ, CARBON 4.7K				
RV709	1-241-763-11	RES, ADJ, CARBON 4.7K				

****

REF.NO.	PART NO.	DESCRIPTION				REMARK
	*A-1346-177-A	D2 BOARD, COMPLETE ******************				
	*4-381-906-01	SPRING (F)				
	4-382-854-11	SCREW (M3X10), P, SW (+)				

<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
C027	1-124-360-00	ELECT	1000MF	20%	16V	
C032	1-126-803-11	ELECT	47MF	20%	16V	
C201	1-124-887-00	ELECT	3300MF	20%	16V	
C204	1-126-940-11	ELECT	330MF	20%	16V	
C205	1-124-477-11	ELECT	47MF	20%	25V	
C207	1-126-105-11	ELECT	1000MF	20%	35V	
C208	1-124-907-11	ELECT	10MF	20%	50V	
C210	1-124-907-11	ELECT	10MF	20%	50V	
C212	1-104-792-51	ELECT	33MF	20%	16V	
C213	1-124-907-11	ELECT	10MF	20%	50V	
C217	1-124-477-11	ELECT	47MF	20%	16V	
C217	1-124-907-11	ELECT	10MF	20%	50V	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION				REMARK
C218	1-124-927-11	ELECT	4.7MF	20%	50V	
C221	1-136-165-00	FILM	0.1MF	5%	50V	
C224	1-126-101-11	ELECT	100MF	20%	16V	
C226	1-124-927-11	ELECT	4.7MF	20%	50V	
C230	1-126-964-11	ELECT	10MF	20%	50V	
C301	1-136-169-00	FILM	0.22MF	5%	50V	
C302	1-124-925-11	ELECT	2.2MF	20%	50V	
C303	1-136-169-00	FILM	0.22MF	5%	50V	
C304	1-136-169-00	FILM	0.22MF	5%	50V	
C305	1-136-169-00	FILM	0.22MF	5%	50V	
C306	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C307	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C308	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C309	1-124-903-11	ELECT	1MF	20%	50V	
C310	1-124-907-11	ELECT	10MF	20%	50V	
C311	1-126-101-11	ELECT	100MF	20%	16V	
C312	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C313	1-136-173-00	FILM	0.47MF	5%	50V	
C314	1-136-173-00	FILM	0.47MF	5%	50V	
C315	1-136-167-00	FILM	0.15MF	5%	50V	
C316	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V	
C317	1-164-161-11	CERAMIC CHIP	0.0022MF		50V	
C318	1-104-551-11	FILM CHIP	0.01MF	5%	16V	
C319	1-126-233-11	ELECT	22MF	20%	25V	
C320	1-124-120-11	ELECT	220MF	20%	16V	
C321	1-124-903-11	ELECT	1MF	20%	50V	
C322	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C323	1-136-169-00	FILM	0.22MF	5%	50V	
C325	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C326	1-124-907-11	ELECT	10MF	20%	50V	
C327	1-124-477-11	ELECT	47MF	20%	16V	
C331	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C335	1-164-346-11	CERAMIC CHIP	1MF		16V	
C355	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C498	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C501	1-124-120-11	ELECT	220MF	20%	16V	
C503	1-164-085-11	CERAMIC	0.001MF	10%	50V	
C512	1-131-350-00	TANTALUM	3.3MF	10%	25V	
C513	1-124-903-11	ELECT	1MF	20%	50V	
C520	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C530	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C531	1-124-482-11	ELECT	33MF	20%	25V	
C533	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	
C551	1-126-104-11	ELECT	470MF	20%	35V	
C552	1-104-788-11	ELECT	100MF	20%	35V	
C553	1-137-292-11	FILM CHIP	0.0068MF	5%	16V	
C555	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	
C558	1-124-480-11	ELECT	470MF	20%	25V	
C560	1-124-907-11	ELECT	10MF	20%	50V	
C562	1-124-443-00	ELECT	100MF	20%	10V	
C603	1-126-101-11	ELECT	100MF	20%	16V	
C615	1-164-625-11	CERAMIC	680PF	10%	500V	
C616	1-136-169-00	FILM	0.22MF	5%	50V	
C617	1-136-169-00	FILM	0.22MF	5%	50V	
C618	1-164-625-11	CERAMIC	680PF	10%	500V	
C619	1-164-625-11	CERAMIC	680PF	10%	500V	
C620	1-124-903-11	ELECT	1MF	20%	50V	
C621	1-137-216-11	FILM	0.0082MF	5%	0	
C623	1-136-601-11	FILM	0.01MF	5%	630V	
C624	1-124-564-11	ELECT	4700MF	20%	25V	
C626	1-123-024-21	ELECT	33MF		160V	
C627	1-136-601-11	FILM	0.01MF	5%	630V	
C629	1-108-686-11	MYLAR	0.0033MF	10%	200V	
C630	1-124-907-11	ELECT	10MF	20%	50V	
C631	1-136-169-00	FILM	0.22MF	5%	50V	
C632	1-136-169-00	FILM	0.22MF	5%	50V	
C633	1-124-477-11	ELECT	47MF	20%	16V	
C634	1-126-943-11	ELECT	2200MF	20%	25V	
C635	1-137-438-11	FILM	0.0082MF	5%	50V	
C636	1-162-318-11	CERAMIC	0.001MF	10%	500V	
C637	1-164-735-11	CAP, CERAMIC	1500PF			
C638	1-164-735-11	CAP, CERAMIC	1500PF			
C639	1-164-735-11	CAP, CERAMIC	1500PF			
C640	1-164-735-11	CAP, CERAMIC	1500PF			
C641	1-124-478-11	ELECT	100MF	20%	25V	
C643	1-162-599-12	CERAMIC	0.0047MF	20%	400V	
C644	1-162-599-12	CERAMIC	0.0047MF	20%	400V	
C645	1-162-599-12	CERAMIC	0.0047MF	20%	400V	
C646	1-124-556-11	ELECT	2200MF	20%	16V	
C801	1-123-024-21	ELECT	33MF		160V	
C802	1-106-371-00	MYLAR	0.015MF	10%	200V	
C805	1-102-244-00	CERAMIC	220PF	10%	500V	
C809 ⚠	1-162-116-91	CERAMIC	680PF	10%	2KV	
C810 ⚠	1-106-367-91	MYLAR	0.01MF	5%	200V	
C812	1-136-076-00	FILM	0.0085MF	3%	2KV	
C815 ⚠	1-162-116-91	FILM	680PF	10%	2KV	
C816	1-124-634-11	ELECT	1MF	20%	250V	
C820 ⚠	1-162-134-91	CERAMIC	470PF	10%	2KV	
C821	1-108-704-11	MYLAR	0.1MF	10%	200V	
C822	1-136-107-00	FILM	0.39MF	5%	200V	
C825	1-102-228-00	CERAMIC	470PF	10%	500V	
C834	1-137-323-11	FILM CHIP	0.01MF	5%	16V	
C850	1-126-105-11	ELECT	1000MF	20%	35V	
C851	1-107-637-11	ELECT	22MF	20%	160V	
C852	1-162-114-00	CERAMIC	0.0047MF		2KV	
C853	1-162-318-11	CERAMIC	0.001MF	10%	500V	
C854	1-124-480-11	ELECT	470MF	20%	25V	
C856	1-162-318-11	CERAMIC	0.001MF	10%	500V	
C857	1-108-702-11	MYLAR	0.068MF	10%	200V	
C860	1-102-228-00	CERAMIC	470PF	10%	500V	
C862	1-124-907-11	ELECT	10MF	20%	50V	
C870	1-104-549-11	FILM CHIP	0.0068MF	5%	16V	
C901 ⚠	1-136-517-12	FILM	0.22MF	20%	300V	
C903 ⚠	1-136-517-12	FILM	0.22MF	20%	300V	
C904 ⚠	1-162-599-71	CERAMIC	0.0047MF	20%	400V	
C905 ⚠	1-162-599-71	CERAMIC	0.0047MF	20%	400V	
C906 ⚠	1-162-599-71	CERAMIC	0.0047MF	20%	400V	
C907 ⚠	1-162-599-71	CERAMIC	0.0047MF	20%	400V	
C908 ⚠	1-162-599-71	CERAMIC	0.0047MF	20%	400V	
C909 ⚠	1-162-599-71	CERAMIC	0.0047MF	20%	400V	
C914 ⚠	1-161-964-61	CERAMIC	0.0047MF		250V	
C915 ⚠	1-161-964-61	CERAMIC	0.0047MF		250V	
C917	1-125-318-00	ELECT(BLOCK)	220MF	20%	400V	
C919	1-162-599-12	CERAMIC	0.0047MF	20%	400V	
C1401	1-136-169-00	FILM	0.22MF	5%	50V	
C1402	1-136-169-00	FILM	0.22MF	5%	50V	
C1403	1-136-169-00	FILM	0.22MF	5%	50V	
C1404	1-136-169-00	FILM	0.22MF	5%	50V	
C1405	1-136-169-00	FILM	0.22MF	5%	50V	
C1406	1-136-169-00	FILM	0.22MF	5%	50V	
C1407	1-165-319-11	CERAMIC CHIP	0.1MF		50V	
C1408	1-165-319-11	CERAMIC CHIP	0.1MF		50V	
C1409	1-164-085-11	CERAMIC	0.001MF	10%	50V	
C1413	1-124-120-11	ELECT	220MF	20%	16V	
C1414	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C1415	1-136-165-00	FILM	0.1MF	5%	50V	
C1417	1-164-346-11	CERAMIC CHIP	1MF		16V	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
C1418	1-164-346-11	CERAMIC CHIP 1MF	16V
C1456	1-126-964-11	ELECT 10MF 20%	50V
C1461	1-216-295-00	METAL GLAZE 0 5% 1/10W	
		<CONNECTOR>	
CN304	*1-564-506-11	PLUG, CONNECTOR 3P	
CN305	*1-564-508-11	PLUG, CONNECTOR 5P	
CN306	1-695-348-21	PIN, CONNECTOR (PC BOARD) 25P	
CN307	1-695-330-21	PIN, CONNECTOR (PC BOARD) 7P	
CN501	*1-508-768-00	PIN, CONNECTOR (5MM PITCH) 6P	
CN901	*1-580-843-11	PIN, CONNECTOR (POWER)	
CN903	*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P	
CN904	*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P	
CN905	*1-564-509-11	PLUG, CONNECTOR 6P	
DY1	*1-580-798-11	CONNECTOR PIN (DY) 6P	
		<TRIMMER>	
CV443	1-141-443-11	TRIMMER, CERAMIC	
		<DIODE>	
D121	8-719-911-19	DIODE 1SS119	
D201	8-719-801-78	DIODE 1SS184	
D202	8-719-914-42	DIODE DA204K	
D203	8-719-901-33	DIODE 1SS133	
D301	8-719-110-22	DIODE RD11ESB2	
D305	8-719-109-85	DIODE RD5.1ESB2	
D310	8-719-801-78	DIODE 1SS184	
D501	8-719-901-33	DIODE 1SS133	
D510	8-719-109-84	DIODE RD5.1ESB1	
D511	8-719-982-11	DIODE MTZJ-4.3B	
D551	8-719-908-03	DIODE GP08D	
D561	8-719-901-33	DIODE 1SS133	
D581	8-719-901-33	DIODE 1SS133	
D602	8-719-901-33	DIODE 1SS133	
D604	8-719-901-33	DIODE 1SS133	
D607	8-719-510-48	DIODE D1N20R	
D608	8-719-510-48	DIODE D1N20R	
D609	8-719-510-48	DIODE D1N20R	
D610	8-719-510-48	DIODE D1N20R	
D612	8-719-032-12	DIODE D1NS6	
D613	8-719-032-12	DIODE D1NS6	
D614	8-719-510-13	DIODE D10SC4MR	
D615	8-719-510-12	DIODE D10SC4M	
D616	8-719-510-64	DIODE D1NL20	
D617	8-719-510-64	DIODE D1NL20	
D618	8-719-510-64	DIODE D1NL20	
D619	8-719-510-64	DIODE D1NL20	
D620	8-719-901-33	DIODE 1SS133	
D621	8-719-109-89	DIODE RD5.6ESB2	
D622	8-719-510-48	DIODE D1N20R	
D623	8-719-901-33	DIODE 1SS133	
D624	8-719-901-33	DIODE 1SS133	
D625	8-719-901-33	DIODE 1SS133	
D626	8-719-921-89	DIODE MTZJ-13C	
D627	8-719-901-33	DIODE 1SS133	
D629	8-719-032-10	DIODE D1NS4-TR2	
D630	8-719-032-12	DIODE D1NS6	
D631	8-719-032-10	DIODE D1NS4-TR2	
D632	8-719-303-49	DIODE R2M	
D635	8-719-901-33	DIODE 1SS133	
D636 ⚠	8-719-032-10	DIODE D1NS4-TR2	

REF.NO.	PART NO.	DESCRIPTION	REMARK
D637 ⚠	8-719-032-10	DIODE D1NS4-TR2	
D701	8-719-901-33	DIODE 1SS133	
D804	8-719-901-33	DIODE 1SS133	
D851	8-719-302-43	DIODE EL1Z	
D852	8-719-028-71	DIODE ES1F-LF-G2	
D853	8-719-302-43	DIODE EL1Z	
D855	8-719-302-43	DIODE EL1Z	
D857	8-719-908-03	DIODE GP08D	
D858	8-719-908-03	DIODE GP08D	
D861	8-719-901-33	DIODE 1SS133	
D862	8-719-901-33	DIODE 1SS133	
D901 ⚠	8-719-510-63	DIODE D4SB60L-F	
D903	8-719-901-33	DIODE 1SS133	
D1401	8-719-010-34	DIODE UZ-4.7BSC	
D1402	8-719-404-46	DIODE MA110	
D1403	8-719-921-69	DIODE MTZJ-9.1	
D1404	8-719-921-69	DIODE MTZJ-9.1	
D1405	8-719-921-69	DIODE MTZJ-9.1	
D1406	8-719-801-78	DIODE 1SS184	
D1408	8-719-404-46	DIODE MA110	
D1409	8-719-404-46	DIODE MA110	
D1410	8-719-404-46	DIODE MA110	
		<DELAY LINE>	
DL301	1-415-122-31	DELAY LINE, 1H (PAL)	
		<FUSE>	
F901 ⚠	1-576-231-21	FUSE (H.B.C.) 4A/250V	
	1-533-230-11	HOLDER, FUSE; F901	
	4-201-057-01	COVER, FUSE; F901	
		<FERRITE BEAD>	
FB601	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB602	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB603	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB604	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB605	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
FB606	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
FB607	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
FB608	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
FB609	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
		<IC>	
IC201	8-759-174-28	IC BA5412-S	
IC203	8-759-145-27	IC UPC1406HA	
IC301	8-752-058-64	IC CXA1213BS	
IC302	8-752-058-68	IC CXA1315M	
IC304	8-752-030-31	IC CXA1024S	
IC306	8-759-701-59	IC NJM78M09FA	
IC551	8-759-801-98	IC LA7830	
IC602 ⚠	1-810-050-11	POWER MODULE DM-47	
		<COIL>	
L301	1-412-785-41	INDUCTOR 5.6UH	
L601	1-406-662-11	COIL, CHOKE 33UH	
L603	1-412-533-21	INDUCTOR 47UH	
L604	1-412-533-21	INDUCTOR 47UH	
L805 ⚠	1-409-542-11	COIL,HORIZONTAL LINEARITY(HLC)	
L808	1-412-446-11	INDUCTOR 3.3MMH	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
L821	1-406-677-21	COIL, CHOKE 10MMH	
		<IC LINK>	
PS601 ⚠	1-532-846-21	LINK, IC 5.0A	
		<TRANSISTOR>	
Q024	8-729-901-01	TRANSISTOR DTC144EK	
Q101	8-729-200-17	TRANSISTOR 2SA1091-O	
Q202	8-729-901-04	TRANSISTOR DTA114EK	
Q203	8-729-422-29	TRANSISTOR 2SD601A-S	
Q204	8-729-422-29	TRANSISTOR 2SD601A-S	
Q301	8-729-422-29	TRANSISTOR 2SD601A-S	
Q302	8-729-422-29	TRANSISTOR 2SD601A-S	
Q303	8-729-422-29	TRANSISTOR 2SD601A-S	
Q304	8-729-422-29	TRANSISTOR 2SD601A-S	
Q305	8-729-422-29	TRANSISTOR 2SD601A-S	
Q306	8-729-422-29	TRANSISTOR 2SD601A-S	
Q307	8-729-901-01	TRANSISTOR DTC144EK	
Q309	8-729-422-29	TRANSISTOR 2SD601A-S	
Q310	8-729-901-01	TRANSISTOR DTC144EK	
Q311	8-729-422-37	TRANSISTOR 2SB709A-R	
Q313	8-729-422-29	TRANSISTOR 2SD601A-S	
Q314	8-729-422-29	TRANSISTOR 2SD601A-S	
Q315	8-729-422-29	TRANSISTOR 2SD601A-S	
Q316	8-729-422-29	TRANSISTOR 2SD601A-S	
Q317	8-729-901-01	TRANSISTOR DTC144EK	
Q318	8-729-422-29	TRANSISTOR 2SD601A-S	
Q319	8-729-422-29	TRANSISTOR 2SD601A-S	
Q501	8-729-422-37	TRANSISTOR 2SB709A-R	
Q551	8-729-901-01	TRANSISTOR DTC144EK	
Q552	8-729-901-01	TRANSISTOR DTC144EK	
Q601	8-729-927-85	TRANSISTOR 2SB1496EF	
Q602	8-729-422-29	TRANSISTOR 2SD601A-S	
Q603	8-729-026-69	TRANSISTOR 2SC4833F	
Q604	8-729-026-69	TRANSISTOR 2SC4833F	
Q605	8-729-927-85	TRANSISTOR 2SB1496EF	
Q606	8-729-422-29	TRANSISTOR 2SD601A-S	
Q607	8-729-422-29	TRANSISTOR 2SD601A-S	
Q608	8-729-927-85	TRANSISTOR 2SB1496EF	
Q609	8-729-422-37	TRANSISTOR 2SB709A-R	
Q611	8-729-422-37	TRANSISTOR 2SB709A-R	
Q612	8-729-422-29	TRANSISTOR 2SD601A-S	
Q613	8-729-422-29	TRANSISTOR 2SD601A-S	
Q801	8-729-140-96	TRANSISTOR 2SD774-34	
Q802	8-729-810-49	TRANSISTOR 2SD1877S-SONY-CA	
Q803	8-729-422-29	TRANSISTOR 2SD601A-S	
Q804	8-729-422-37	TRANSISTOR 2SB709A-R	
Q1406	8-729-422-37	TRANSISTOR 2SB709A-R	
Q1407	8-719-421-69	DIODE MA133	
		<RESISTOR>	
JR002	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR003	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR004	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR006	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR007	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR009	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR010	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR011	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR015	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR016	1-216-295-00	METAL GLAZE 0 5% 1/10W	

REF.NO.	PART NO.	DESCRIPTION	REMARK
JR017	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR018	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR019	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR020	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR021	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR022	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR023	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR024	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR025	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR026	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR028	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR029	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR030	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR031	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR032	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR033	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR034	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR037	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR038	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR039	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR041	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR042	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR043	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR044	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR045	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR046	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR047	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR048	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR049	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR051	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR052	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR054	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR055	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR056	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR058	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR062	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR070	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR071	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR073	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR074	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR078	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR201	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR202	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JW045	1-249-411-11	CARBON 330 5% 1/4W	
R123	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R124	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R126	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R201	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R203	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R204	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R210	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R211	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R213	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R214	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R215	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R220	1-216-117-00	METAL GLAZE 680K 5% 1/10W	
R221	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R223	1-249-395-11	CARBON 15 5% 1/4W	F
R224	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R225	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R231	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R232	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R236	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	

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The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION				REMARK
R237	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R301	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R302	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R303	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R304	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R305	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R306	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R307	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R308	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R309	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R310	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R311	1-216-685-11	METAL CHIP	27K	0.50%	1/10W	
R312	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R313	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R314	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R315	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R316	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R317	1-216-198-91	METAL GLAZE	1K	5%	1/8W	
R318	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R319	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R320	1-249-409-11	CARBON	220	5%	1/4W	F
R321	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R322	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R323	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R324	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R325	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R326	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R327	1-216-198-91	METAL GLAZE	1K	5%	1/8W	
R328	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R329	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R330	1-215-861-00	METAL OXIDE	47	5%	1W	F
R331	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R332	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R333	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R334	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R335	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R336	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R337	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R338	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R339	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R341	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R350	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R351	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R352	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R353	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R354	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R355	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R356	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R357	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R359	1-216-103-91	METAL GLAZE	180K	5%	1/10W	
R360	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R362	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R370	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R371	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R372	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R373	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R374	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R376	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R377	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R379	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R380	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R381	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R385	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R386	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R390	1-216-190-00	METAL GLAZE	470	5%	1/8W	
R391	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R392	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R393	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R394	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R395	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R396	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R397	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R408	1-216-463-00	METAL OXIDE	12K	5%	2W	F
R432	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R498	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R501	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R502	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R503	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R504	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R517	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R518	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R520	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R521	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R522	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R532	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R538	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R551	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R552	1-215-867-00	METAL OXIDE	470	5%	1W	F
R553	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R556	1-216-429-00	METAL OXIDE	270	5%	1W	F
R557	1-216-393-00	METAL OXIDE	2.2	5%	3W	F
R558	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R559	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R562	1-249-412-11	CARBON	390	5%	1/4W	F
R563	1-247-885-00	CARBON	180K	5%	1/4W	
R564	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R565	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R566	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R567	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R569	1-247-887-00	CARBON	220K	5%	1/4W	
R602	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R603	1-249-377-11	CARBON	0.47	5%	1/4W	F
R604	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R607	1-249-377-11	CARBON	0.47	5%	1/4W	F
R609	1-249-420-11	CARBON	1.8K	5%	1/4W	
R610	⚠ 1-202-933-61	FUSIBLE	0.1	10%	1/2W	F
R611	1-249-420-11	CARBON	1.8K	5%	1/4W	
R612	1-216-349-00	METAL OXIDE	1	5%	1W	F
R613	1-216-349-00	METAL OXIDE	1	5%	1W	F
R614	1-215-904-11	METAL OXIDE	100K	5%	2W	F
R615	1-215-904-11	METAL OXIDE	100K	5%	2W	F
R616	1-215-858-00	METAL OXIDE	15	5%	1W	F
R617	1-215-858-00	METAL OXIDE	15	5%	1W	F
R618	⚠ 1-212-855-61	FUSIBLE	8.2	5%	1/4W	F
R619	⚠ 1-212-952-61	FUSIBLE	5.6	5%	1/2W	F
R620	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R621	1-249-377-11	CARBON	0.47	5%	1/4W	F
R622	1-249-377-11	CARBON	0.47	5%	1/4W	F
R623	1-249-377-11	CARBON	0.47	5%	1/4W	F
R624	1-249-417-11	CARBON	1K	5%	1/4W	F
R625	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R626	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R627	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R633	1-249-388-11	CARBON	3.9	5%	1/4W	F
R634	1-249-377-11	CARBON	0.47	5%	1/4W	F
R636	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R637	1-247-811-31	CARBON	150	5%	1/4W	F

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF.NO.	PART NO.	DESCRIPTION				REMARK
R640	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R641	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R642	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R643	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R645	⚠ 1-212-855-61	FUSIBLE	8.2	5%	1/4W	F
R647	1-216-425-11	METAL OXIDE	56	5%	1W	F
R648	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R649	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R650	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R651	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R652	1-249-411-11	CARBON	330	5%	1/4W	
R653	1-249-377-11	CARBON	0.47	5%	1/4W	F
R655	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R656	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R658	1-216-029-00	METAL GLAZE	150	5%	1/10W	
R659	1-216-029-00	METAL GLAZE	150	5%	1/10W	
R660	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R661	1-215-864-00	METAL OXIDE	150	5%	1W	F
R662	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R670	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R671	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R672	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R673	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R674	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R675	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R700	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R701	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R801	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R803	1-215-922-11	METAL OXIDE	6.8K	5%	3W	F
R805	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R806	1-216-451-11	METAL OXIDE	120	5%	2W	F
R807	1-215-881-11	METAL OXIDE	15	5%	2W	F
R810	⚠ 1-216-198-91	METAL GLAZE	1K	5%	1/8W	
R813	1-215-893-11	METAL OXIDE	1.5K	5%	2W	F
R814	1-216-483-11	METAL OXIDE	2.7K	5%	3W	F
R815	1-216-483-11	METAL OXIDE	2.7K	5%	3W	F
R823	1-215-868-00	METAL OXIDE	680	5%	1W	F
R831	1-216-428-00	METAL OXIDE	180	5%	1W	F
R833	⚠ 1-212-865-61	FUSIBLE	22	5%	1/4W	F
R851	1-249-382-11	CARBON	1.2	5%	1/4W	F
R852	1-215-869-11	METAL OXIDE	1K	5%	1W	F
R853	1-216-398-11	METAL OXIDE	5.6	5%	3W	F
R854	1-249-377-11	CARBON	0.47	5%	1/4W	F
R855	1-249-492-11	CARBON	47K	5%	1/2W	F
R856	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R857	1-214-919-00	METAL	180K	1%	1/2W	
R858	1-216-363-00	METAL OXIDE	0.33	5%	2W	F
R859	1-247-758-11	CARBON	3.3K	5%	1/2W	F
R860	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R862	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R863	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R864	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R865	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R866	1-216-428-00	METAL OXIDE	180	5%	1W	F
R867	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R868	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R869	1-216-248-00	METAL GLAZE	120K	5%	1/8W	
R870	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R880	1-216-429-00	METAL OXIDE	270	5%	1W	F
R901	⚠ 1-244-945-91	CARBON	1M	5%	1/2W	
R902	⚠ 1-218-265-21	METAL GLAZE	8.2M	5%	1W F	
R903	⚠ 1-205-909-11	WIREWOUND	3.3	5%	10W	F
R907	1-214-927-00	CARBON	390K	5%	1/2W	
R1410	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1411	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R1414	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R1416	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R1417	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R1418	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R1421	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1422	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1423	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1424	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R1425	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R1426	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R1427	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R1428	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R1429	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R1430	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1453	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R1457	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1458	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1459	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1461	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1462	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1463	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1464	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R1465	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R1467	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R1468	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

<VARIABLE RESISTOR>

REF.NO.	PART NO.	DESCRIPTION
RV301	1-223-235-11	RES, ADJ, CARBON 470
RV302	1-223-241-11	RES, ADJ, CARBON 47K
RV502	1-241-630-11	RES, ADJ, CARBON 10K
RV503	1-241-759-21	RES, ADJ, CARBON 220
RV551	1-224-250-99	RES, ADJ, METAL GLAZE 2.2K
RV803	1-223-236-11	RES, ADJ, CARBON 1K

<RELAY>

REF.NO.	PART NO.	DESCRIPTION
RY601	⚠ 1-515-720-31	RELAY
RY901	⚠ 1-515-720-31	RELAY

<SWITCH>

REF.NO.	PART NO.	DESCRIPTION
S801	1-572-707-11	SWITCH, LEVER
S802	1-572-707-11	SWITCH, LEVER

<SPARK GAP>

REF.NO.	PART NO.	DESCRIPTION
SG801	1-519-422-11	GAP, SPARK

<TRANSFORMER>

REF.NO.	PART NO.	DESCRIPTION
T301	1-404-524-11	DAT
T603	⚠ 1-423-563-11	TRANSFORMER, CONVERTER DRIVE
T604	⚠ 1-423-922-11	TRANSFORMER, CONVERTER (SBT)
T605	⚠ 1-423-564-11	TRANSFORMER, CONVERTER (PIT)
T801	1-437-195-11	TRANSFORMER, HORIZONTAL DRIVE
T851	⚠ 1-453-119-11	TRANSFORMER ASSY, FLYBACK (NX-2820A1)
T901	⚠ 1-424-391-11	TRANSFORMER, LINE FILTER
T902	⚠ 1-424-391-11	TRANSFORMER, LINE FILTER

D2

REF.NO.	PART NO.	DESCRIPTION	REMARK
		<THERMISTOR>	
THP501	1-800-200-00	THERMISTOR S-3K	
THP901	⚠ 1-806-165-12	THERMISTOR (POSITIVE)	
		<VARISTOR>	
VDR601	1-810-052-21	VARISTOR	
VDR602	1-810-052-21	VARISTOR	
		<CRYSTAL>	
X301	1-577-611-11	OSCILALTOR, CERAMIC	
X443	1-567-504-11	OSCILLATOR, CRYSTAL	
		<MODULE>	
YCM301	1-235-833-11	YC MODULE	

****

MISCELLANEOUS
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REF.NO.	PART NO.	DESCRIPTION	REMARK
	⚠.1-426-145-21	COIL, DEGAUSSING	
	⚠.1-451-249-31	DEFLECTION YOKE Y14NDA2	
	1-452-277-00	MAGNET, BMC	
	1-504-465-11	SPEAKER (8CM)	
	⚠.1-765-286-11	CORD, POWER 2.5A/250V	
V901	⚠.8-735-555-05	PICTURE TUBE (A34JBU10X)	

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ACCESSARIES AND PACKING MATERIALS
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REF.NO.	PART NO.	DESCRIPTION	REMARK
	3-757-672-11	MANUAL, INSTRUCTION (KV-V1410D) (ENGLISH/FRENCH/ GERMAN/ITALIAN)	
	3-757-672-41	MANUAL, INSTRUCTION (KV-V1410E) (DUTCH/FRENCH/GERMAN/ PORTUGUESE/SPANISH)	
	3-757-672-51	MANUAL, INSTRUCTION (SPANISH) (KV-V1410E)	
	3-757-672-61	MANUAL, INSTRUCTION (ITALIAN) (KV-V1410A)	
	*4-043-948-01	CUSHION (UPPER) (ASSY)	
	*4-043-949-01	CUSHION (LOWER) (ASSY)	
	*4-043-950-01	INDIVIDUAL CARTON	
	*4-380-340-01	BAG, PROTECTION	

REMOTE COMMANDER

REF.NO.	PART NO.	DESCRIPTION	REMARK
	1-467-435-11	REMOTE COMMANDER (RM-846)	
	9-907-032-01	COVER, BATTERY (FOR RM-846)	
	9-907-033-01	COVER (FOR RM-846)	

**The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.**

EXPLODED VIEWS and ELECTRICAL PARTS LIST of VIDEO section

SECTION 6

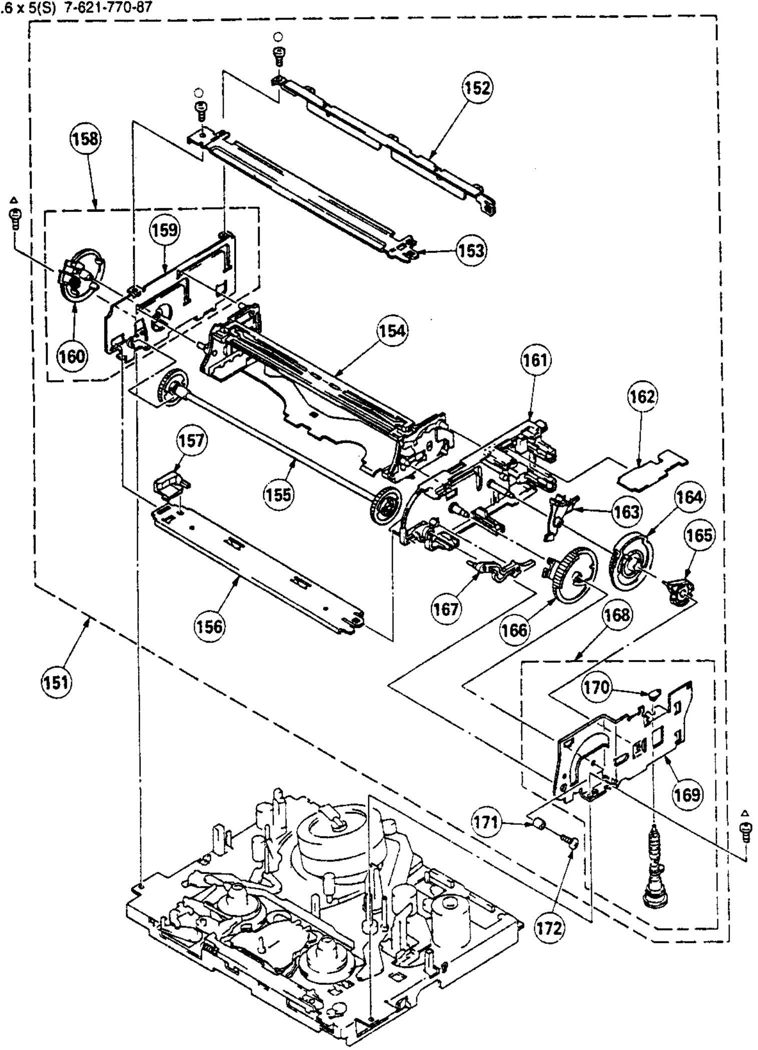
EXPLODED VIEWS (VIDEO SECTION)

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

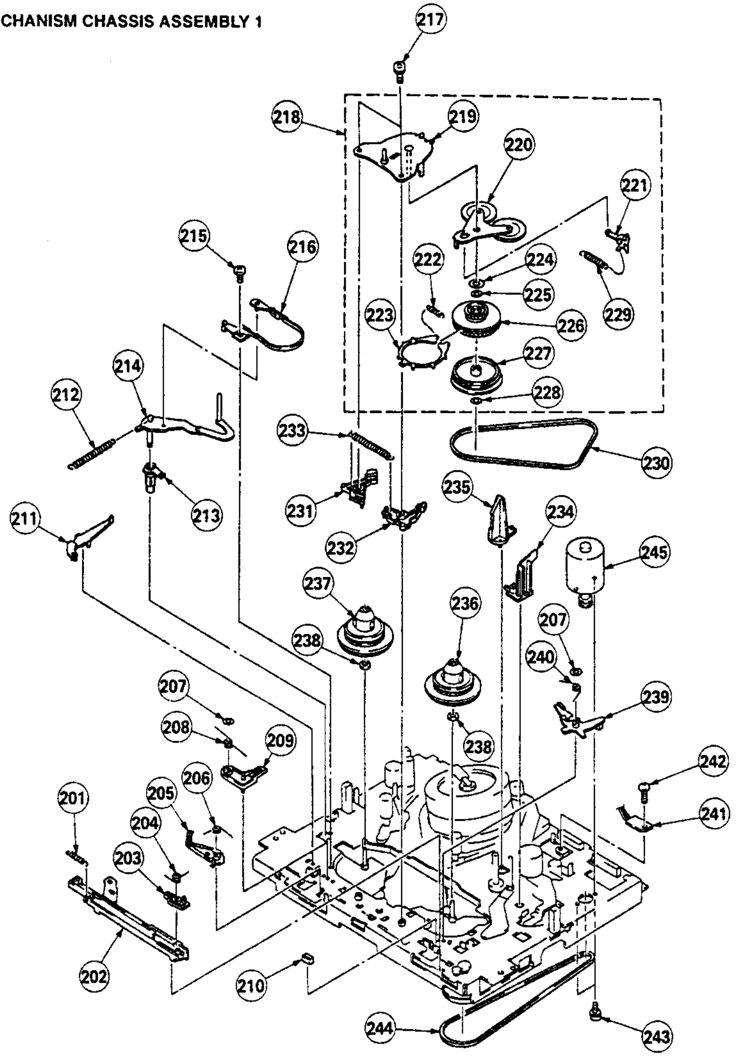
6-1. HL CASSETTE COMPARTMENT ASSEMBLY

○ : PTT 2.6 x 4(S) 7-621-773-86
△ : PTT 2.6 x 5(S) 7-621-770-87



REF. NO.	PART NO.	DESCRIPTION	REMARK
151	3-946-965-01	FL ASSY	
152	3-947-008-01	ANGLE, REAR	
153	3-946-995-01	PLATE, UPPER	
154	3-946-979-01	HOLDER ASSY, CASSETTE	
155	3-946-983-01	GEAR ASSY, SYNCHRO	
156	3-946-993-01	ANGLE, FRONT	
157	3-946-994-01	GUIDE (L), CASSETTE	
158	3-946-978-01	FRAME (L) ASSY	
159	3-947-009-01	RIVETING, FRAME (L)	
160	3-947-010-01	GEAR (L) ASSY, LIFT	
161	3-947-011-01	FRAME (R)	
162	3-946-992-01	PWB (B) ASSY, FL	
163	3-946-991-01	LEVER ASSY, SWITCH	
164	3-946-980-01	WHEEL ASSY, WORM	
165	3-946-981-01	ARM ASSY, SWITCH	
166	3-946-982-01	GEAR (R) ASSY, LIFT	
167	3-947-012-01	LEVER ASSY, LIFT	
168	3-946-990-01	COVER ASSY, FRAME	
169	3-947-013-01	COVER, FRAME	
170	3-947-020-01	BEARING (A), F WORM	
171	3-948-705-01	COLLAR	
172	3-948-706-01	SCREW (3X6)	

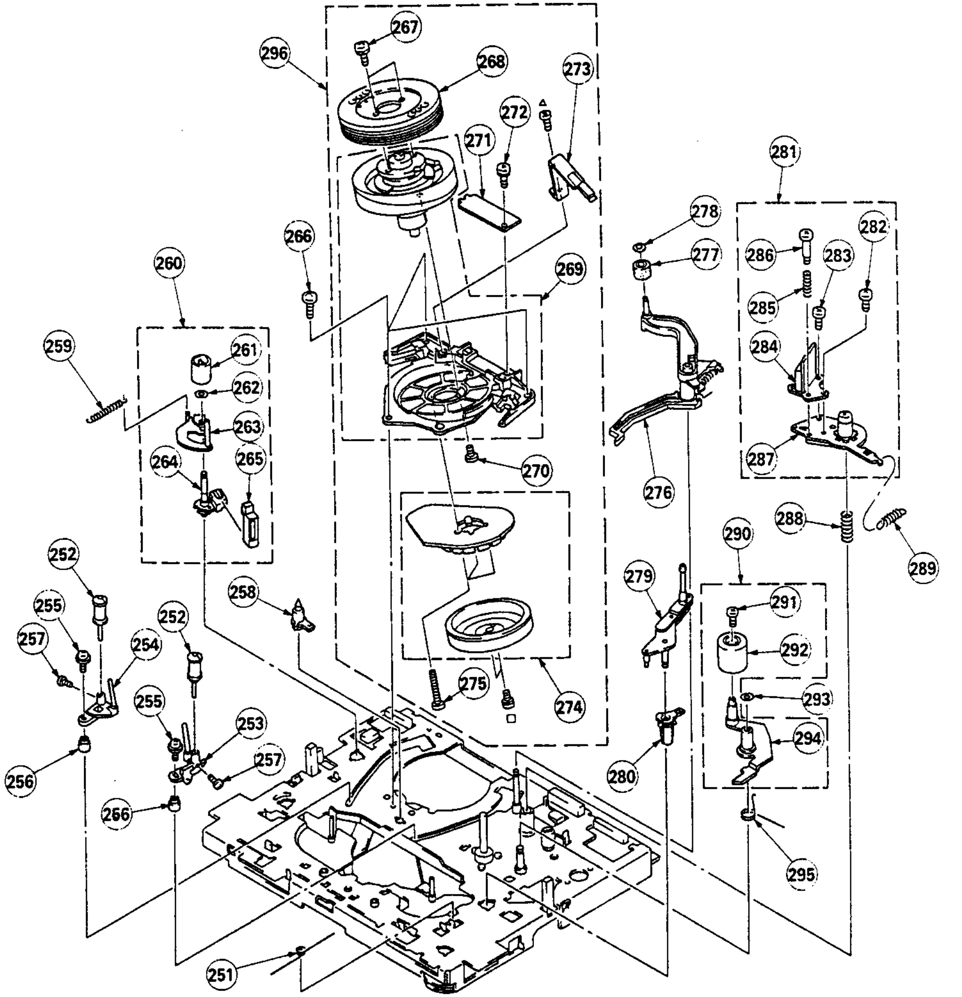
6-2. MECHANISM CHASSIS ASSEMBLY 1



REF. NO.	PART NO.	DESCRIPTION	REMARK
201	3-947-015-01	SPRING, BK SLIDE	
202	3-947-001-01	PLATE, SLIDE, BK	
203	3-947-014-01	HOOK, BK TRIGGER	
204	3-947-016-01	SPRING, TRIGGER HOOK	
205	3-946-959-01	ARM, REC	
206	3-946-947-01	SPRING, REC ARM	
207	3-946-916-01	CUT (3X6X0.5), NLW	
208	3-946-915-01	SPRING, SS ARM	
209	3-946-914-01	ARM, SS BRAKE	
210	3-947-067-01	RUBBER, DAMPER	
211	3-946-946-01	ARM, REC SWITCH	
212	3-946-937-01	SPRING, BT	
213	3-946-936-01	METAL, BT ARM	
214	3-946-934-01	ARM ASSY, TENSION	
215	3-946-966-01	SCREW (2.6X5), +C TIGHT	
216	3-946-935-01	BAND ASSY, BT	
217	3-947-000-01	SCREW (2X4), +	
218	3-951-590-01	PLATE ASSY, SUB	
219	3-952-168-01	RIVETING, SUB PLATE	
220	3-946-988-01	PLATE ASSY, GEAR	
221	3-946-987-01	ARM, CENTER RING	
222	3-946-986-01	SPRING, CHANGE RING	
223	3-946-985-01	RING, CHANGE	
224	3-946-989-01	WL (W) (C) (6.4X9X0.3)	
225	3-946-997-01	WL (W) (2.5X4.5X0.25)	
226	3-951-591-01	CLUTCH ASSY	
227	3-946-984-01	PULLEY ASSY, CLUTCH	
228	3-946-996-01	CUT (2.1X5X0.3), P.W.	
229	3-947-998-01	SPRING, CENTER RING ARM	
230	3-946-999-01	BELT, DRIVE	
231	3-947-017-01	ARM (L) ASSY, BRAKE	
232	3-947-018-01	ARM (R) ASSY, BRAKE	
233	3-947-019-01	SPRING, BRAKE ARM	
234	3-947-069-01	GUIDE BLOCK	
235	3-947-068-01	GUIDE ASSY, TAPE	
236	3-947-002-01	TABLE ASSY, REEL	
237	3-947-997-01	TABLE ASSY, S REEL	
238	3-947-003-01	WASHER (2.5X4.5X0.5)	
239	3-946-912-01	ARM ASSY, TS BRAKE	
240	3-946-913-01	SPRING, TS ARM	
241	3-947-626-01	SENSOR (EYN-S10R)	
242	3-947-996-01	SCREW (1.55X4.5X0.3)	
243	3-946-918-01	SCREW (3X4)	
244	3-946-923-01	BELT, LOADING	
245	3-946-917-01	MOTOR ASSY, L	

6-3. MECHANISM CHASSIS ASSEMBLY 2

△ : PTT 2.6 x 5(S) 7-621-770-87
□ : PS 2.6 x 5 7-628-254-05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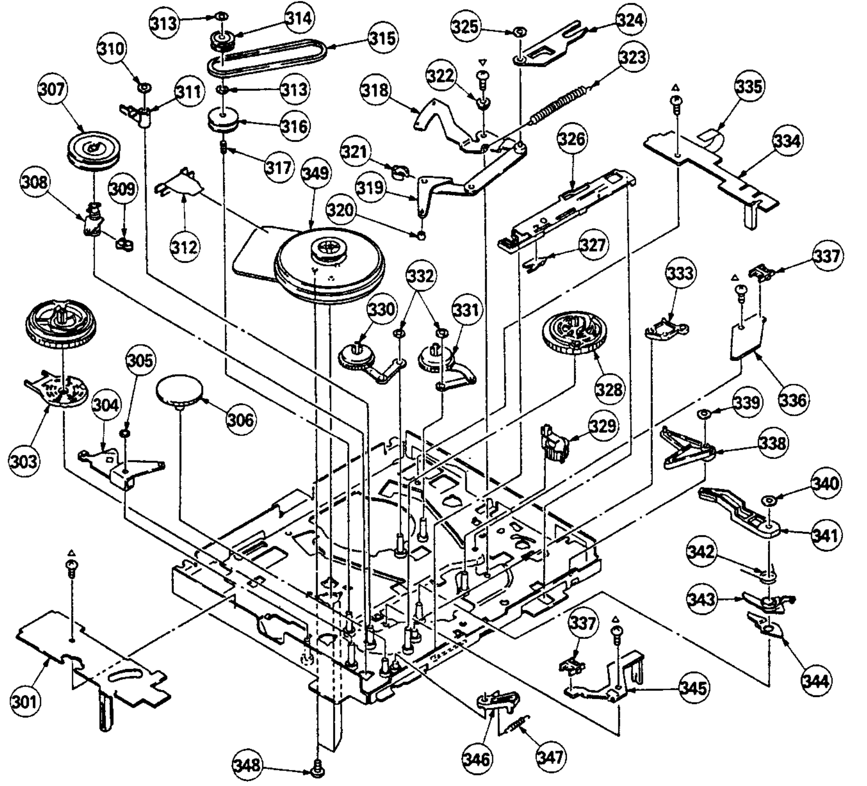
REF.NO.	PART NO.	DESCRIPTION	REMARK
251	3-947-022-01	SPRING, RG ARM	
252	3-947-073-01	POST, ROLLER	
253	3-947-072-01	L BLOCK (R) ASSY	
254	3-947-071-01	L BLOCK (L) ASSY	
255	3-947-078-01	SCREW (2.6X3), + CUP	
256	3-947-077-01	BOSS, LOADING	
257	3-947-074-01	SCREW (2X2.3)	
258	3-947-070-01	BOSS, CASSETTE GUIDE	
259	3-948-474-01	SPRING, F POST	
260	3-946-972-01	FE (BASE) ASSY	
261	3-946-975-01	ROLLER, IMPEDANCE	
262	3-946-977-01	CUT (1.6X3.8X0.3), W	
263	3-946-976-01	ARM ASSY, F POST	
264	3-946-974-01	HEAD (HVFHG0003), FE	
265	3-946-973-01	HEAD (HV113001), FE	
266	3-947-066-01	SCREW (3X7), +C TIGHT	
267	3-947-060-01	SCREW (3X8)	
268	3-949-187-01	DRUM (TP83-011), UPPER	
269	3-947-046-01	CYLINDER (MOUNT)	
270	3-947-061-01	SCREW (2X6), CAMERA B TIGHT	
271	3-947-047-01	PC BOARD ASSY, VIDEO OUT	
272	3-947-064-01	SCREW (2.6X6), S TIGHT	
273	3-947-999-01	GROUND ASSY, DRUM	
274	3-947-043-01	MOTOR (E20EL), DRUM	
275	3-947-065-01	SCREW (2.6X16)	
276	3-947-080-01	LEVER ASSY, CLEANING	
277	3-947-624-01	ROLLER, CLEANING	
278	3-947-625-01	CUT(2.1X5X0.3), POLY-SLIDER(W)	
279	3-947-021-01	ARM ASSY, RG	
280	3-946-936-01	METAL, BT ARM	
281	3-947-081-01	AH (BASE) ASSY	
282	3-946-929-01	SCREW (2.6X8), PAN	
283	3-946-930-01	SCREW (2.6X7), + PAN	
284	3-947-082-01	HEAD (HVMZA1136), ACE	
285	3-947-083-01	SP, AZIMUTH	
286	3-946-928-01	SCREW, AZIMUTU SP	
287	3-946-931-01	HOLDER ASSY, AH (BASE)	
288	3-946-933-01	SPRING, AH (BASE)	
289	3-946-932-01	SPRING, X ADJ	
290	3-947-004-01	ARM ASSY, P ROLLER	
291	3-947-007-01	SCREW (2.6X4), + BINO	
292	3-947-005-01	PINCH ROLLER	
293	3-947-024-01	HL (C) (3.5X5.5X0.5)	
294	3-947-006-01	RIVETING, P ROLLER ARM	
295	3-947-025-01	SPRING, P ARM	
296	3-949-186-01	CYLINDER ASSY	

6-4. MECHANISM CHASSIS ASSEMBLY 3

△ : PTT 2.6 x 5(S) 7-621-770-87
▽ : PTT 3 x 6(S) 7-682-547-04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REF.NO.	PART NO.	DESCRIPTION	REMARK
301	3-946-954-01	PWB ASSY, BASE	
303	3-946-958-01	SWITCH, MODE	
304	3-947-026-01	PLATE ASSY	
305	3-947-027-01	CUT (3X6X0.5), POLY-SLIDER (W)	
306	3-946-922-01	GEAR, LOADING	
307	3-946-921-01	PULLEY, LOADING	
308	3-946-919-01	METAL ASSY, L PULLEY	
309	3-946-920-01	ARM ASSY, TRG GEAR	
310	3-946-964-01	CUT (2.1X5X0.5)	
311	3-946-961-01	ARM, BREAKER	
312	3-947-029-01	LEAD ASSY, CM	
313	3-946-963-01	CUT (2.1X4X0.4)	
314	3-946-950-01	PULLEY ASSY, RE	
315	3-946-962-01	BELT, FL	
316	3-946-951-01	PULLEY, EJECT	
317	3-946-960-01	SPRING, BREAKER	
318	3-946-926-01	RIVETING, L JOINT PLATE	
319	3-946-952-01	STOPPER, GEAR PLATE	
320	3-946-941-01	ROLLER, CAM	
321	3-946-945-01	STOPPER, L LEVER	
322	3-946-940-01	COLLAR, L GEAR PLATE	
323	3-946-927-01	SPRING, L GR PLATE	
324	3-946-939-01	PLATE, UP, BT PULL	
325	3-946-967-01	CUT (2.1X4X0.5)	
326	3-946-943-01	PLATE, SLIDE, M	
327	3-946-944-01	LEVER	
328	3-946-925-01	GEAR, L CAM	
329	3-946-998-01	ARM ASSY, RF GEAR	
330	3-947-075-01	GEAR (L) ASSY, T THREADING	
331	3-947-076-01	GEAR (R) ASSY, T THREADING	
332	3-947-079-01	HL (C) (4.7X7X0.5)	
333	3-946-942-01	LEVER, M	
334	3-946-957-01	PWB ASSY, DM	
335	3-946-949-01	LEAD (EPC) (BNCD-6-63),DM	
336	3-946-956-01	PWB ASSY, S SENSOR	
337	3-946-948-01	JOINER (MCN40011), PWB	
338	3-946-938-01	LEVER, BT	
339	3-946-968-01	CUT (3X7.5X0.5), HLW	
340	3-947-035-01	CUT (2.6X6X0.5)	
341	3-947-033-01	LEVER, CB RETURN	
342	3-947-031-01	SPRING, C BRAKE	
343	3-947-032-01	LEVER, C BRAKE	
344	3-947-030-01	ARM ASSY, C BRAKE	
345	3-946-955-01	PWB ASSY, T SENSOR	
346	3-946-910-01	ARM, BK RELEASE	
347	3-946-911-01	SPRING, RESET	
348	3-947-034-01	SCREW (2.6X7), + C TIGHT	
349	3-947-028-01	MOTOR (F2QXB38)	

SECTION 7

MF1 **MF3**

ELECTRICAL PARTS LIST (VIDEO SECTION)

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

When indicating parts by reference number, please include the board name.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

REF.NO.	PART NO.	DESCRIPTION			REMARK
	*A-1301-920-A	MF1 BOARD, COMPLETE *******************			
		<CAPACITOR>			
C103	1-101-003-00	CERAMIC	0.0047MF		50V
C107	1-102-074-00	CERAMIC	0.001MF	10%	50V
		<CONNECTOR>			
CN101	1-695-380-21	PIN, CONNECTOR (PC BOARD) 19P			
CN102	1-695-368-21	PIN, CONNECTOR (PC BOARD) 7P			
		<DIODE>			
D101	8-719-028-30	DIODE SPR-39MVWF			
D102	8-719-992-26	DIODE SLR-305DC3F			
D103	8-719-992-24	DIODE SLR-305VC3F			
D104	8-719-992-24	DIODE SLR-305VC3F			
D105	8-719-992-24	DIODE SLR-305VC3F			
D109	8-719-921-54	DIODE MTZJ-6.2B			
D110	8-719-921-54	DIODE MTZJ-6.2B			
D111	8-719-921-54	DIODE MTZJ-6.2B			
D112	8-719-921-54	DIODE MTZJ-6.2B			
D113	8-719-921-54	DIODE MTZJ-6.2B			
D116	8-719-921-54	DIODE MTZJ-6.2B			
D302	8-719-109-93	DIODE RD6.2ESB2			
		<IC>			
IC101	1-466-833-11	RAY-CATCHER BLOCK, REMOCON			
		<JACK>			
J101	1-691-293-21	JACK			
J102	1-695-451-11	JACK, PIN 2P			
		<COIL>			
L101	1-410-509-11	INDUCTOR	10UH		
L103	1-410-509-11	INDUCTOR	10UH		
L105	1-410-316-11	INDUCTOR	1UH		
		<RESISTOR>			
R101	1-247-807-31	CARBON	100	5%	1/4W
R102	1-247-807-31	CARBON	100	5%	1/4W
R103	1-247-807-31	CARBON	100	5%	1/4W
R104	1-247-807-31	CARBON	100	5%	1/4W
R105	1-247-804-11	CARBON	75	5%	1/4W
R107	1-249-415-11	CARBON	680	5%	1/4W
R108	1-249-418-11	CARBON	1.2K	5%	1/4W
R109	1-249-420-11	CARBON	1.8K	5%	1/4W
R110	1-249-423-11	CARBON	3.3K	5%	1/4W
R111	1-249-428-11	CARBON	8.2K	5%	1/4W
R112	1-249-415-11	CARBON	680	5%	1/4W
R113	1-249-418-11	CARBON	1.2K	5%	1/4W
R114	1-249-420-11	CARBON	1.8K	5%	1/4W
R115	1-249-423-11	CARBON	3.3K	5%	1/4W
R116	1-249-428-11	CARBON	8.2K	5%	1/4W
R118	1-249-421-11	CARBON	2.2K	5%	1/4W
R119	1-249-406-11	CARBON	120	5%	1/4W
R120	1-249-418-11	CARBON	1.2K	5%	1/4W
R121	1-249-418-11	CARBON	1.2K	5%	1/4W
		<SWITCH>			
S101	1-572-200-11	SWITCH, KEYBOARD			
S102	1-572-200-11	SWITCH, KEYBOARD			
S103	1-572-200-11	SWITCH, KEYBOARD			
S104	1-572-200-11	SWITCH, KEYBOARD			
S105	1-572-200-11	SWITCH, KEYBOARD			
S106	1-572-908-11	SWITCH, SLIDE			
S107	1-572-200-11	SWITCH, KEYBOARD			
S108	1-572-200-11	SWITCH, KEYBOARD			
S110	1-572-200-11	SWITCH, KEYBOARD			
S111	1-572-200-11	SWITCH, KEYBOARD			
S112	1-572-200-11	SWITCH, KEYBOARD			
S113	1-572-907-11	SWITCH, SLIDE			
S114	1-554-118-00	SWITCH, PUSH (1 KEY)			
**					
	*1-650-173-11	MF3 BOARD *********			
		<CONNECTOR>			
CN301	1-506-488-11	PIN, CONNECTOR 9P			
		<DIODE>			
D301	8-719-992-26	DIODE SLR-305DC3F			
		<SWITCH>			
S301	1-572-662-61	SWITCH, ROTARY			
S302	1-572-200-11	SWITCH, KEYBOARD			
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MA2

REF.NO.	PART NO.	DESCRIPTION			REMARK
	*A-1306-446-A	MA2 BOARD, COMPLETE *******************			
		<CAPACITOR>			
C001	1-163-243-11	CERAMIC CHIP 47PF		5%	50V
C002	1-163-141-00	CERAMIC CHIP 0.001MF		5%	50V
C003	1-124-126-00	ELECT	47MF	20%	10V
C004	1-163-243-11	CERAMIC CHIP 47PF		5%	50V
C006	1-163-095-00	CERAMIC CHIP 12PF		5%	50V
C008	1-163-095-00	CERAMIC CHIP 12PF		5%	50V
C009	1-163-243-11	CERAMIC CHIP 47PF		5%	50V
C010	1-163-095-00	CERAMIC CHIP 12PF		5%	50V
C015	1-163-095-00	CERAMIC CHIP 12PF		5%	50V
C019	1-124-907-11	ELECT	10MF	20%	50V
C020	1-163-038-00	CERAMIC CHIP 0.1MF			25V
C021	1-124-443-00	ELECT	100MF	20%	10V
C103	1-124-499-11	ELECT	1MF	20%	50V
C104	1-126-233-11	ELECT	22MF	20%	25V
C105	1-164-161-11	CERAMIC CHIP 0.0022MF		10%	50V
C106	1-126-103-11	ELECT	470MF	20%	16V
C110	1-124-907-11	ELECT	10MF	20%	50V
C113	1-124-120-11	ELECT	220MF	20%	16V
C114	1-124-126-00	ELECT	47MF	20%	10V
C115	1-124-907-11	ELECT	10MF	20%	50V
C117	1-124-907-11	ELECT	10MF	20%	50V
C202	1-124-477-11	ELECT	47MF	20%	16V
C203	1-124-477-11	ELECT	47MF	20%	16V
C204	1-124-477-11	ELECT	47MF	20%	16V
C205	1-124-477-11	ELECT	47MF	20%	16V
C206	1-124-477-11	ELECT	47MF	20%	16V
C207	1-124-477-11	ELECT	47MF	20%	16V
C208	1-124-477-11	ELECT	47MF	20%	16V
C209	1-124-477-11	ELECT	47MF	20%	16V
C212	1-124-477-11	ELECT.	47MF	20%	16V
C213	1-124-477-11	ELECT	47MF	20%	16V
C215	1-124-477-11	ELECT	47MF	20%	16V
C217	1-124-903-11	ELECT	1MF	20%	50V
C218	1-124-903-11	ELECT	1MF	20%	50V
C219	1-124-477-11	ELECT	47MF	20%	16V
C302	1-163-009-11	CERAMIC CHIP 0.001MF		10%	50V
C303	1-124-477-11	ELECT	47MF	20%	16V
C304	1-124-902-00	ELECT	0.47MF	20%	50V
C305	1-124-927-11	ELECT	4.7MF	20%	50V
C306	1-104-792-51	ELECT	33MF	20%	16V
C307	1-130-483-00	MYLAR	0.01MF	5%	50V
C308	1-163-038-00	CERAMIC CHIP 0.1MF			25V
C310	1-124-903-11	ELECT	1MF	20%	50V
C311	1-163-038-00	CERAMIC CHIP 0.1MF			25V
C312	1-163-022-00	CERAMIC CHIP 0.012MF		10%	50V
C313	1-124-903-11	ELECT	1MF	20%	50V
C314	1-124-907-11	ELECT	10MF	20%	50V
C316	1-126-962-11	ELECT	3.3MF	20%	50V
C317	1-130-012-00	FILM	330PF	5%	50V
C318	1-124-477-11	ELECT	47MF	20%	16V
C319	1-163-011-11	CERAMIC CHIP 0.0015MF		10%	50V
C320	1-137-350-11	FILM	0.015MF	5%	100V
C321	1-164-232-11	CERAMIC CHIP 0.01MF		10%	50V
C322	1-163-038-00	CERAMIC CHIP 0.1MF			25V
C323	1-163-137-00	CERAMIC CHIP 680PF		5%	50V
C401	1-124-477-11	ELECT	47MF	20%	16V
C402	1-126-926-11	ELECT	1000MF	20%	10V
C404	1-163-117-00	CERAMIC CHIP 100PF		5%	50V
C405	1-163-001-11	CERAMIC CHIP 220PF		10%	50V
C406	1-163-117-00	CERAMIC CHIP 100PF		5%	50V
C407	1-163-809-11	CERAMIC CHIP 0.047MF		10%	25V
C408	1-163-117-00	CERAMIC CHIP 100PF		5%	50V
C409	1-124-925-11	ELECT	2.2MF	20%	50V
C410	1-124-903-11	ELECT	1MF	20%	50V
C411	1-124-903-11	ELECT	1MF	20%	50V
C412	1-163-833-00	CERAMIC CHIP 0.068MF			25V
C413	1-126-101-11	ELECT	100MF	20%	16V
C414	1-163-001-11	CERAMIC CHIP 220PF		10%	50V
C415	1-124-477-11	ELECT	47MF	20%	16V
C416	1-163-035-00	CERAMIC CHIP 0.047MF			50V
C417	1-126-233-11	ELECT	22MF	20%	25V
C418	1-126-103-11	ELECT	470MF	20%	16V
C420	1-163-005-11	CERAMIC CHIP 470PF		10%	50V
C422	1-124-477-11	ELECT	47MF	20%	16V
C423	1-124-925-11	ELECT	2.2MF	20%	50V
C425	1-163-141-00	CERAMIC CHIP 0.001MF		5%	50V
C440	1-163-031-11	CERAMIC CHIP 0.01MF			50V
C501	1-163-031-11	CERAMIC CHIP 0.01MF			50V
C502	1-163-031-11	CERAMIC CHIP 0.01MF			50V
C503	1-124-126-00	ELECT	47MF	20%	10V
C505	1-164-344-11	CERAMIC CHIP 0.068MF		10%	25V
C506	1-124-927-11	ELECT	4.7MF	20%	50V
C507	1-126-233-11	ELECT	22MF	20%	25V
C508	1-124-907-11	ELECT	10MF	20%	50V
C509	1-124-443-00	ELECT	100MF	20%	6.3V
C510	1-164-182-11	CERAMIC CHIP 0.0033MF		10%	50V
C511	1-124-126-00	ELECT	47MF	20%	10V
C512	1-163-017-00	CERAMIC CHIP 0.0047MF		10%	50V
C513	1-164-004-11	CERAMIC CHIP 0.1MF		10%	25V
C514	1-124-925-11	ELECT	2.2MF	20%	50V
C516	1-164-344-11	CERAMIC CHIP 0.068MF		10%	25V
C517	1-124-927-11	ELECT	4.7MF	20%	50V
C518	1-130-487-00	MYLAR	0.022MF	5%	50V
C519	1-130-487-00	MYLAR	0.022MF	5%	50V
C520	1-124-925-11	ELECT	2.2MF	20%	50V
C521	1-126-233-11	ELECT	22MF	20%	25V
C522	1-163-031-11	CERAMIC CHIP 0.01MF			50V
C523	1-163-038-00	CERAMIC CHIP 0.1MF			25V
C524	1-124-443-00	ELECT	100MF	20%	6.3V
C525	1-164-232-11	CERAMIC CHIP 0.01MF		10%	50V
C526	1-163-033-00	CERAMIC CHIP 0.022MF			50V
C527	1-124-903-11	ELECT	1MF	20%	50V
C528	1-163-033-00	CERAMIC CHIP 0.022MF			50V
C529	1-163-099-00	CERAMIC CHIP 18PF		5%	50V
C530	1-163-099-00	CERAMIC CHIP 18PF		5%	50V
C531	1-163-031-11	CERAMIC CHIP 0.01MF			50V
C532	1-124-907-11	ELECT	10MF	20%	50V
C533	1-126-233-11	ELECT	22MF	20%	25V
C534	1-163-011-11	CERAMIC CHIP 0.0015MF		10%	50V
C536	1-163-038-00	CERAMIC CHIP 0.1MF			25V
C537	1-126-101-11	ELECT	100MF	20%	16V
C538	1-163-038-00	CERAMIC CHIP 0.1MF			25V
C539	1-163-031-11	CERAMIC CHIP 0.01MF			50V
C540	1-163-117-00	CERAMIC CHIP 100PF		5%	50V
C541	1-124-907-11	ELECT	10MF	20%	50V
C542	1-163-031-11	CERAMIC CHIP 0.01MF			50V
C543	1-163-059-00	CERAMIC CHIP 0.01MF			50V
C546	1-124-907-11	ELECT	10MF	20%	50V
C547	1-163-001-11	CERAMIC CHIP 220PF		10%	50V
C702	1-163-245-11	CERAMIC CHIP 56PF		5%	50V
C704	1-164-232-11	CERAMIC CHIP 0.01MF		10%	50V
C705	1-163-038-00	CERAMIC CHIP 0.1MF			25V

REF.NO.	PART NO.	DESCRIPTION	REMARK
C707	1-124-443-00	ELECT 100MF 20%	10V
C708	1-126-103-11	ELECT 470MF 20%	16V
C709	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C710	1-125-710-11	CAP, DOUBLE LAYER 0.10F	
C711	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C714	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C715	1-163-038-00	CERAMIC CHIP 0.1MF	25V

<FILTER>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CF001	1-577-101-11	VIBRATOR, CERAMIC	
CF702	1-577-101-11	VIBRATOR, CERAMIC	

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN001	1-695-380-21	PIN, CONNECTOR (PC BOARD) 19P	
CN002	1-506-488-11	PIN, CONNECTOR 9P	
CN003	1-563-602-11	CONNECTOR, FLEXIBLE 25P	
CN004	*1-573-843-11	CONNECTOR, BOARD TO BOARD 11P	
CN101	1-695-915-11	TAB (CONTACT)	
CN201	*1-564-512-11	PLUG, CONNECTOR 9P	
CN301	*1-560-891-00	PIN, CONNECTOR 3P	
CN302	*1-560-892-00	PIN, CONNECTOR 4P	
CN303	*1-564-521-11	PLUG, CONNECTOR 6P	
CN401	1-573-846-11	CONNECTOR, BOARD TO BOARD 14P	
CN402	1-573-846-11	CONNECTOR, BOARD TO BOARD 14P	
CN403	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN501	1-695-350-11	PIN, CONNECTOR (PC BOARD) 27P	
CN502	*1-568-787-11	PIN, CONNECTOR 10P	
CN503	*1-560-891-00	PIN, CONNECTOR 3P	

<TRIMMER>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CT701	1-141-227-00	CAP, TRIMMER	

<DIODE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
D001	8-719-200-82	DIODE 11ES2	
D002	8-719-921-54	DIODE MTZJ-6.2B	
D003	8-719-921-54	DIODE MTZJ-6.2B	
D004	8-719-901-33	DIODE 1SS133	
D005	8-719-921-54	DIODE MTZJ-6.2B	
D008	8-719-921-54	DIODE MTZJ-6.2B	
D009	8-719-921-54	DIODE MTZJ-6.2B	
D011	8-719-921-54	DIODE MTZJ-6.2B	
D012	8-719-921-54	DIODE MTZJ-6.2B	
D014	8-719-921-54	DIODE MTZJ-6.2B	
D015	8-719-921-54	DIODE MTZJ-6.2B	
D016	8-719-921-54	DIODE MTZJ-6.2B	
D017	8-719-921-54	DIODE MTZJ-6.2B	
D018	8-719-921-54	DIODE MTZJ-6.2B	
D019	8-719-921-54	DIODE MTZJ-6.2B	
D020	8-719-921-54	DIODE MTZJ-6.2B	
D021	8-719-921-54	DIODE MTZJ-6.2B	
D101	8-719-901-33	DIODE 1SS133	
D102	8-719-109-84	DIODE RD5.1ESB1	
D103	8-719-982-26	DIODE MTZJ-33B	
D104	8-719-921-69	DIODE MTZJ-9.1	
D301	8-719-901-33	DIODE 1SS133	
D302	8-719-901-33	DIODE 1SS133	
D303	8-719-901-33	DIODE 1SS133	
D402	8-719-921-69	DIODE MTZJ-9.1	
D410	8-719-921-69	DIODE MTZJ-9.1	
D411	8-719-901-33	DIODE 1SS133	
D412	8-719-901-33	DIODE 1SS133	
D413	8-719-901-33	DIODE 1SS133	
D415	8-719-108-12	DIODE RD9.1EW	
D416	8-719-921-69	DIODE MTZJ-9.1	
D417	8-719-921-69	DIODE MTZJ-9.1	
D418	8-719-921-69	DIODE MTZJ-9.1	
D419	8-719-108-12	DIODE RD9.1EW	
D421	8-719-921-69	DIODE MTZJ-9.1	
D423	8-719-901-33	DIODE 1SS133	
D424	8-719-901-33	DIODE 1SS133	
D425	8-719-901-33	DIODE 1SS133	
D426	8-719-901-33	DIODE 1SS133	
D427	8-719-901-33	DIODE 1SS133	
D501	8-719-109-85	DIODE RD5.1ESB2	
D502	8-719-901-33	DIODE 1SS133	
D503	8-719-901-33	DIODE 1SS133	
D701	8-719-921-54	DIODE MTZJ-6.2B	
D704	8-719-901-33	DIODE 1SS133	
D705	8-719-901-33	DIODE 1SS133	

<FERRITE BEAD>

REF.NO.	PART NO.	DESCRIPTION	REMARK
FB001	1-410-396-41	FERRITE BEAD INDUCTOR	
FB002	1-410-396-41	FERRITE BEAD INDUCTOR	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC001	8-752-847-26	IC CXP85340A-SV4714	
IC002	8-759-191-69	IC CAT24C08P	
IC201	8-759-927-56	IC BA7021	
IC202	8-759-056-91	IC BA7611AN	
IC203	8-759-932-69	IC BU4053BCF-T2	
IC204	8-759-945-48	IC BA7001	
IC301	8-759-089-82	IC BA7790LS	
IC501	8-752-850-55	IC CXP80724-082Q	
IC502	8-759-246-14	IC TA8823N	
IC503	8-759-503-91	IC TL082ACP	
IC504	8-759-822-09	IC LB1641	
IC505	8-759-983-74	IC LM324NS	
IC506	8-759-745-64	IC NJM4560M	
IC507	8-759-983-69	IC LM358PS	
IC701	8-759-192-06	IC MB89121-162	
IC702	8-759-515-58	IC PST572H	
IC703	8-759-510-43	IC PST572C	

<JACK>

REF.NO.	PART NO.	DESCRIPTION	REMARK
J401	1-695-935-11	CONNECTOR (SQUARE TYPE) 21P	

<COIL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
L001	1-408-413-00	INDUCTOR 22UH	
L002	1-414-194-11	INDUCTOR 33UH	
L003	1-414-194-11	INDUCTOR 33UH	
L004	1-414-194-11	INDUCTOR 33UH	
L005	1-414-194-11	INDUCTOR 33UH	
L006	1-414-146-31	INDUCTOR 2.2UH	
L030	1-414-146-31	INDUCTOR 2.2UH	
L102	1-410-680-31	INDUCTOR 330UH	
L103	1-410-645-31	INDUCTOR 100UH	
L104	1-410-645-31	INDUCTOR 100UH	
L201	1-410-521-11	INDUCTOR 100UH	
L301	1-410-521-11	INDUCTOR 100UH	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
L302	1-410-071-11	INDUCTOR 10MMH	
L303	1-410-687-11	INDUCTOR 1.2MMH	
L401	1-408-421-00	INDUCTOR 100UH	
L402	1-408-421-00	INDUCTOR 100UH	
L403	1-410-470-11	INDUCTOR 10UH	
L501	1-408-413-00	INDUCTOR 22UH	
L502	1-410-645-31	INDUCTOR 100UH	
L503	1-414-146-31	INDUCTOR 2.2UH	
L702	1-414-146-31	INDUCTOR 2.2UH	
L720	1-414-146-31	INDUCTOR 2.2UH	

<IC LINK>

REF.NO.	PART NO.	DESCRIPTION	REMARK
PS301⚠	1-532-727-91	LINK, IC 0.25A	
PS501⚠	1-532-679-91	LINK, IC 0.6A	

<TRANSISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q104	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q105	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q201	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q202	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q203	8-729-900-53	TRANSISTOR DTC114EK	
Q204	8-729-900-53	TRANSISTOR DTC114EK	
Q205	8-729-900-53	TRANSISTOR DTC114EK	
Q206	8-729-216-22	TRANSISTOR 2SA1162-G	
Q207	8-729-216-22	TRANSISTOR 2SA1162-G	
Q301	8-729-421-19	TRANSISTOR UN2213	
Q302	8-729-901-46	TRANSISTOR DTA114YK	
Q303	8-729-012-31	TRANSISTOR 2SC4040-TL2-Q	
Q401	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q403	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q404	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q405	8-729-216-22	TRANSISTOR 2SA1162-G	
Q406	8-729-216-22	TRANSISTOR 2SA1162-G	
Q407	8-729-216-22	TRANSISTOR 2SA1162-G	
Q408	8-729-216-22	TRANSISTOR 2SA1162-G	
Q409	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q410	8-729-216-22	TRANSISTOR 2SA1162-G	
Q412	8-729-424-18	TRANSISTOR UN2113	
Q501	8-729-424-12	TRANSISTOR UN2112	
Q503	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q602	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q603	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q701	8-729-424-56	TRANSISTOR UN211L	

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
JR002	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR003	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR004	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR006	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR007	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR008	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR009	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR010	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR011	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR012	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR013	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR014	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR015	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR016	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR017	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR018	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR019	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR020	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR021	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR022	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR024	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR025	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR026	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR027	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR029	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR030	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR031	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR032	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR033	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR034	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR035	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR036	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR037	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR038	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR039	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR040	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR041	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR042	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR043	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR048	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR900	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR901	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR902	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR903	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R001	1-216-027-00	METAL GLAZE 120 5% 1/10W	
R002	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R003	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R004	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R005	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R006	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R007	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R008	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R009	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R010	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R011	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R012	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R013	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R014	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R015	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R016	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R017	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R018	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R019	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R020	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R021	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R022	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R023	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R024	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R025	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R026	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R027	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R028	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R029	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R030	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R031	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R032	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R033	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R034	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R035	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R036	1-216-049-00	METAL GLAZE 1K 5% 1/10W	

MA2

REF.NO.	PART NO.	DESCRIPTION				REMARK
R037	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R038	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R041	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R042	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R043	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R044	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R045	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R046	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R047	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R049	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R050	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R051	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R052	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R053	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R054	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R055	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R056	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R058	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R059	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R060	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R061	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R064	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R065	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R070	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R071	1-216-226-00	METAL GLAZE	15K	5%	1/8W	
R102	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R107	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R108	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R109	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R110	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R111	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R112	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R113	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R114	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R115	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R116	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R118	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R119	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R120	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R201	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R202	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R203	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R206	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R207	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R208	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R209	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R210	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R211	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R212	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R214	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R215	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R216	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R217	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R218	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R219	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R222	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R223	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R224	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R225	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R226	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R227	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R228	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R229	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R301	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R303	1-216-689-11	METAL GLAZE	39K	5%	1/10W	
R304	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R305	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R306	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R307	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R308	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R309	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R312	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R313	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R314	1-216-068-00	METAL GLAZE	6.2K	5%	1/10W	
R315	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R316	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R317	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R318	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R319	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R320	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R322	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R323	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R324	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R325	1-249-389-11	CARBON	4.7	5%	1/4W	F
R326	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R327	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R328	1-216-068-00	METAL GLAZE	6.2K	5%	1/10W	
R329	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R330	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R331	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R401	1-216-226-00	METAL GLAZE	15K	5%	1/8W	
R402	1-216-226-00	METAL GLAZE	15K	5%	1/8W	
R403	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R404	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R408	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R410	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R412	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R414	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R415	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R417	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R418	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R419	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R420	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R421	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R422	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R423	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R424	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R426	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R427	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R428	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R429	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R430	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R432	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R433	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R434	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R435	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R436	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R437	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R438	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R439	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R441	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R442	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R443	1-212-861-11	FUSIBLE	15	5%	1/4W	F
R445	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R446	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R448	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R449	1-249-405-11	CARBON	100	5%	1/4W	F

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

MA2

REF.NO.	PART NO.	DESCRIPTION				REMARK
R450	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R451	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R452	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R453	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R454	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R460	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R462	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R463	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R464	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R482	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R483	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R501	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R502	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R503	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R504	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R505	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R506	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R507	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R508	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R509	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R510	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R511	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R512	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R513	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R514	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R515	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R516	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R517	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R518	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R519	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R520	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R521	1-216-103-91	METAL GLAZE	180K	5%	1/10W	
R522	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R523	1-216-689-11	METAL GLAZE	39K	5%	1/10W	
R524	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R525	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R527	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R528	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R529	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R530	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R531	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R532	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R533	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R534	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R535	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R536	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R537	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R538	1-216-675-11	METAL CHIP	10K	0.50%	1/10W	
R539	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R540	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R541	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R542	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R543	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R544	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R545	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R546	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R547	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R548	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R549	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R550	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R551	1-249-410-11	CARBON	270	5%	1/4W	
R552	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R553	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R554	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R555	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R556	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R557	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R558	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R559	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R559	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R560	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R561	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R562	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W	
R563	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R564	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R565	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R566	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W	
R567	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R568	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R569 ⚠	1-212-950-61	FUSIBLE	4.7	5%	1/2W	F
R570	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R571	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R572	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R574	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R575	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R577	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R578	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R579	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R580	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R581	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R582	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R583	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R584	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R585	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R586	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R588	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R589	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R590	1-249-412-11	CARBON	390	5%	1/4W	
R591	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R601	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R701	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R702	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R703	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R704	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R705	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R706	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R707	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R708	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R709	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R710	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R711	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R712	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R713	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R714	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R715	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R716	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R717	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R718	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R719	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R720	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R721	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R722	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R723	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R724	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R726	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R728	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R730	1-216-113-00	METAL GLAZE	470K	5%	1/10W	

YC2 **RP3**

REF.NO.	PART NO.	DESCRIPTION			REMARK
L016	1-410-117-31	INDUCTOR	0.68MMH		
L018	1-408-419-00	INDUCTOR	68UH		
L019	1-408-421-00	INDUCTOR	100UH		
L020	1-408-609-41	INDUCTOR	33UH		
L023	1-410-435-21	INDUCTOR	220UH		

<TRANSISTOR>

Q002	8-729-422-29	TRANSISTOR 2SD601A-S
Q003	8-729-422-29	TRANSISTOR 2SD601A-S
Q004	8-729-422-29	TRANSISTOR 2SD601A-S
Q005	8-729-422-29	TRANSISTOR 2SD601A-S
Q006	8-729-422-29	TRANSISTOR 2SD601A-S
Q007	8-729-422-29	TRANSISTOR 2SD601A-S
Q008	8-729-421-19	TRANSISTOR UN2213
Q009	8-729-424-18	TRANSISTOR UN2113
Q011	8-729-422-37	TRANSISTOR 2SB709A-R
Q012	8-729-422-37	TRANSISTOR 2SB709A-R
Q013	8-729-421-19	TRANSISTOR UN2213
Q014	8-729-424-56	TRANSISTOR UN211L
Q015	8-729-424-18	TRANSISTOR UN2113
Q016	8-729-422-37	TRANSISTOR 2SB709A-R
Q017	8-729-422-37	TRANSISTOR 2SB709A-R
Q018	8-729-422-29	TRANSISTOR 2SD601A-S
Q020	8-729-422-37	TRANSISTOR 2SB709A-R
Q033	8-729-421-19	TRANSISTOR UN2213
Q034	8-729-421-19	TRANSISTOR UN2213
Q035	8-729-421-19	TRANSISTOR UN2213
Q111	8-729-421-19	TRANSISTOR UN2213
Q112	8-729-424-18	TRANSISTOR UN2113
Q113	8-729-421-19	TRANSISTOR UN2213
Q115	8-729-421-19	TRANSISTOR UN2213

<RESISTOR>

JR003	1-216-295-00	METAL GLAZE	0	5%	1/10W
R001	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R002	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R003	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R004	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R005	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R006	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R007	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R008	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R009	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R010	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R011	1-216-689-11	METAL GLAZE	39K	5%	1/10W
R012	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R013	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R014	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R015	1-216-041-00	METAL GLAZE	470	5%	1/10W
R016	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R017	1-216-035-00	METAL GLAZE	270	5%	1/10W
R018	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R019	1-216-035-00	METAL GLAZE	270	5%	1/10W
R020	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R022	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R023	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R024	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R025	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R026	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R029	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R030	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R031	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R034	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W

REF.NO.	PART NO.	DESCRIPTION			REMARK
R035	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R036	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R037	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R038	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R039	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R040	1-216-037-00	METAL GLAZE	330	5%	1/10W
R041	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R042	1-216-052-00	METAL GLAZE	1.3K	5%	1/10W
R043	1-216-036-00	METAL GLAZE	300	5%	1/10W
R044	1-216-295-00	METAL GLAZE	0	5%	1/10W
R045	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R046	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R048	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R049	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R050	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R051	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R052	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R053	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R054	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R055	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R057	1-216-044-00	METAL GLAZE	620	5%	1/10W
R058	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R059	1-216-041-00	METAL GLAZE	470	5%	1/10W
R066	1-216-295-00	METAL GLAZE	0	5%	1/10W
R110	1-216-045-00	METAL GLAZE	680	5%	1/10W
R113	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R114	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R115	1-216-045-00	METAL GLAZE	680	5%	1/10W
R116	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R117	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R118	1-216-023-00	METAL GLAZE	82	5%	1/10W
R119	1-216-045-00	METAL GLAZE	680	5%	1/10W
R120	1-216-037-00	METAL GLAZE	330	5%	1/10W
R122	1-216-295-00	METAL GLAZE	0	5%	1/10W
R125	1-216-295-00	METAL GLAZE	0	5%	1/10W
R126	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R127	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R128	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R129	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R131	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R132	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R133	1-216-079-00	METAL GLAZE	18K	5%	1/10W

<VARIABLE RESISTOR>

RV002	1-241-630-11	RES, ADJ, CARBON 10K
RV003	1-241-630-11	RES, ADJ, CARBON 10K
RV004	1-241-630-11	RES, ADJ, CARBON 10K
RV005	1-241-630-11	RES, ADJ, CARBON 10K
RV006	1-241-628-11	RES, ADJ, CARBON 2.2K

<CRYSTAL>

X001	1-579-608-11	VIBRATOR, CRYSTAL

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*A-1394-557-A RP3 BOARD, COMPLETE
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<CAPACITOR>

C435	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C437	1-163-105-00	CERAMIC CHIP	33PF	5%	50V

RP3

REF.NO.	PART NO.	DESCRIPTION				REMARK
C439	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C440	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C441	1-124-925-11	ELECT	2.2MF		20%	50V
C442	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C443	1-126-233-11	ELECT	22MF		20%	25V
C445	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C501	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C502	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C503	1-163-038-00	CERAMIC CHIP	0.1MF			25V
C506	1-163-038-00	CERAMIC CHIP	0.1MF			25V
C507	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C508	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C509	1-124-463-00	ELECT	0.1MF		20%	50V
C510	1-163-103-00	CERAMIC CHIP	27PF		5%	50V
C511	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C512	1-163-035-00	CERAMIC CHIP	0.047MF			50V
C513	1-124-589-11	ELECT	47MF		20%	10V
C514	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C516	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C517	1-163-105-00	CERAMIC CHIP	33PF		5%	50V
C518	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C519	1-163-113-00	CERAMIC CHIP	68PF		5%	50V
C520	1-163-129-00	CERAMIC CHIP	330PF		5%	50V
C521	1-163-111-00	CERAMIC CHIP	56PF		5%	50V
C523	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C524	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C525	1-124-126-00	ELECT	47MF		20%	10V
C526	1-124-126-00	ELECT	47MF		20%	10V
C527	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C528	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C529	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C530	1-216-295-00	METAL GLAZE	0	5%	1/10W	
C531	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C532	1-124-126-00	ELECT	47MF		20%	10V
C534	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C539	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C540	1-163-093-00	CERAMIC CHIP	10PF		5%	50V

<CONNECTOR>

CN501	1-691-613-11	CONNECTOR, BOARD TO BOARD 6P
CN502	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P
CN503	*1-564-519-11	PLUG, CONNECTOR 4P

<DIODE>

D501	8-719-986-73	DIODE RB441Q

<IC>

IC501	8-759-048-53	IC LA7376-A

<COIL>

L403	1-410-519-11	INDUCTOR	68UH
L499	1-410-521-11	INDUCTOR	100UH
L501	1-408-421-00	INDUCTOR	100UH
L503	1-408-416-00	INDUCTOR	39UH
L504	1-408-416-00	INDUCTOR	39UH
L505	1-408-411-00	INDUCTOR	15UH
L506	1-408-424-00	INDUCTOR	180UH
L507	1-408-411-00	INDUCTOR	15UH
L509	1-408-421-00	INDUCTOR	100UH
L510	1-408-421-00	INDUCTOR	100UH

<TRANSISTOR>

REF.NO.	PART NO.	DESCRIPTION
Q404	8-729-422-29	TRANSISTOR 2SD601A-S
Q406	8-729-422-29	TRANSISTOR 2SD601A-S
Q407	8-729-422-37	TRANSISTOR 2SB709A-R
Q408	8-729-422-37	TRANSISTOR 2SB709A-R
Q409	8-729-422-29	TRANSISTOR 2SD601A-S
Q410	8-729-422-29	TRANSISTOR 2SD601A-S
Q501	8-729-422-29	TRANSISTOR 2SD601A-S
Q502	8-729-422-37	TRANSISTOR 2SB709A-R
Q503	8-729-422-29	TRANSISTOR 2SD601A-S
Q506	8-729-421-19	TRANSISTOR UN2213
Q507	8-729-422-29	TRANSISTOR 2SD601A-S
Q510	8-729-422-29	TRANSISTOR 2SD601A-S
Q511	8-729-421-19	TRANSISTOR UN2213
Q512	8-729-422-29	TRANSISTOR 2SD601A-S

<RESISTOR>

R473	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R474	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R475	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R476	1-216-042-00	METAL GLAZE	510	5%	1/10W
R478	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R479	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R480	1-216-033-00	METAL GLAZE	220	5%	1/10W
R481	1-216-041-00	METAL GLAZE	470	5%	1/10W
R482	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R485	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R486	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R487	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R501	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R502	1-216-068-00	METAL GLAZE	6.2K	5%	1/10W
R503	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R504	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R505	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R506	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R507	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R508	1-216-084-00	METAL GLAZE	30K	5%	1/10W
R509	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R510	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R511	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R512	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R513	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R514	1-216-047-00	METAL GLAZE	820	5%	1/10W
R515	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R516	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R517	1-216-039-00	METAL GLAZE	390	5%	1/10W
R518	1-216-039-00	METAL GLAZE	390	5%	1/10W
R519	1-216-047-00	METAL GLAZE	820	5%	1/10W
R520	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R521	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R522	1-216-043-00	METAL GLAZE	560	5%	1/10W
R523	1-216-045-00	METAL GLAZE	680	5%	1/10W
R524	1-216-041-00	METAL GLAZE	470	5%	1/10W
R525	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R528	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R529	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R533	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R534	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R535	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R536	1-216-046-00	METAL GLAZE	750	5%	1/10W
R537	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W

MA2 VP TK ZD

REF.NO.	PART NO.	DESCRIPTION	REMARK
R733	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R734	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R739	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R740	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R900	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R901	1-216-037-00	METAL GLAZE 330 5% 1/10W	

<VARIABLE RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
RV301	1-241-767-21	RES, ADJ, CARBON 100K	

<TRANSFORMER>

REF.NO.	PART NO.	DESCRIPTION	REMARK
T301	1-423-414-11	TRANSFORMER, BIAS OSCILLATION	

<TUNER>

REF.NO.	PART NO.	DESCRIPTION	REMARK
TU101	1-693-233-11	TUNER, VIF (BTF-2C404)	

<CRYSTAL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
X501	1-578-774-11	VIBRATOR, CRYSTAL	
X701	1-579-463-11	VIBRATOR, CRYSTAL	

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*A-1347-086-A VP BOARD, COMPLETE (KV-V1410D)
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<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
C901	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C902	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V	
C904	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V	
C906	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	
C910	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN901	1-573-824-11	CONNECTOR, BOARD TO BOARD 10P	

<DIODE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
D901	8-719-901-33	DIODE 1SS133	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC901	8-759-030-60	IC SDA5642	
IC902	8-759-147-30	IC UPD75004-GB-562-3B4	

<COIL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
L941	1-410-509-11	INDUCTOR 10UH	

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
R901	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R902	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R903	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R904	1-216-119-00	METAL GLAZE 820K 5% 1/10W	
R905	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R906	1-216-119-00	METAL GLAZE 820K 5% 1/10W	
R907	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R908	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R910	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R911	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R912	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R913	1-216-073-00	METAL GLAZE 10K 5% 1/10W	

<CRYSTAL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
X901	1-577-101-11	VIBRATOR, CERAMIC	

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*1-650-181-11 TK BOARD
****

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN301	1-764-271-31	CONNECTOR, BOARD TO BOARD 9P	
CN302	1-764-272-31	CONNECTOR, BOARD TO BOARD 13P	
CN303	1-506-469-11	PIN, CONNECTOR 4P	
CN304	1-695-388-21	PIN, CONNECTOR (PC BOARD) 27P	

<VARIABLE RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
RV302	1-241-123-11	RES, ADJ, CARBON 47K	

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*A-1390-426-A ZD BOARD, COMPLETE
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4-382-854-11 SCREW (M3X10), P, SW (+)

<CAPACTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
C901	1-124-477-11	ELECT 47MF 20% 25V	
C902	1-124-477-11	ELECT 47MF 20% 25V	
C903	1-124-480-11	ELECT 470MF 20% 25V	
C904	1-128-546-81	ELECT 10000MF 20% 10V	
C905	1-124-477-11	ELECT 47MF 20% 25V	
C906	1-124-477-11	ELECT 47MF 20% 25V	
C907	1-124-477-11	ELECT 47MF 20% 25V	
C908	1-124-477-11	ELECT 47MF 20% 25V	

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN901	*1-564-509-11	PLUG, CONNECTOR 6P	
CN902	*1-564-512-11	PLUG, CONNECTOR 9P	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC901	8-759-148-79	IC UPC2406HF	
IC902	8-749-920-43	IC SI-3050CA	
IC903	8-759-518-68	IC PQ12RF21	
IC904	8-759-198-03	IC PQ09RF21	
IC905	8-749-921-21	IC SI-3120C	

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
R901	1-249-409-11	CARBON 220 5% 1/4W	
R902	1-249-409-11	CARBON 220 5% 1/4W	
R903	1-249-409-11	CARBON 220 5% 1/4W	

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YC2

*A-1394-504-A YC2 BOARD, COMPLETE
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<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
C001	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C002	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	
C003	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C004	1-163-137-00	CERAMIC CHIP 680PF 5% 50V	
C005	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C006	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C007	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C008	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C009	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C010	1-124-126-00	ELECT 47MF 20% 10V	
C011	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C012	1-124-907-11	ELECT 10MF 20% 50V	
C013	1-124-907-11	ELECT 10MF 20% 50V	
C014	1-164-005-11	CERAMIC CHIP 0.47MF 16V	
C015	1-124-907-11	ELECT 10MF 20% 50V	
C017	1-124-126-00	ELECT 47MF 20% 10V	
C018	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V	
C019	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C020	1-124-903-11	ELECT 1MF 20% 50V	
C021	1-124-903-11	ELECT 1MF 20% 50V	
C022	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C023	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V	
C025	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C027	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	
C029	1-163-123-00	CERAMIC CHIP 180PF 5% 50V	
C030	1-163-107-00	CERAMIC CHIP 39PF 5% 50V	
C031	1-163-111-00	CERAMIC CHIP 56PF 5% 50V	
C032	1-124-277-11	ELECT 4.7MF 20% 35V	
C033	1-163-139-00	CERAMIC CHIP 820PF 5% 50V	
C034	1-163-088-00	CERAMIC CHIP 5PF 0.25PF 50V	
C035	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C036	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C037	1-124-907-11	ELECT 10MF 20% 50V	
C038	1-124-907-11	ELECT 10MF 20% 50V	
C039	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C040	1-124-252-00	ELECT 0.33MF 20% 50V	
C041	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	
C042	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C043	1-124-903-11	ELECT 1MF 20% 50V	
C044	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V	
C045	1-124-903-11	ELECT 1MF 20% 50V	
C047	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C048	1-163-114-00	CERAMIC CHIP 75PF 5% 50V	
C049	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C050	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C051	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C052	1-124-927-11	ELECT 4.7MF 20% 50V	
C053	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C057	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C058	1-163-105-00	CERAMIC CHIP 33PF 5% 50V	
C059	1-124-477-11	ELECT 47MF 20% 16V	
C060	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C061	1-124-903-11	ELECT 1MF 20% 50V	
C062	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C063	1-163-127-00	CERAMIC CHIP 270PF 5% 50V	
C064	1-163-119-00	CERAMIC CHIP 120PF 5% 50V	
C065	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C066	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C067	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C090	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C091	1-124-126-00	ELECT 47MF 20% 10V	
C092	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C093	1-124-126-00	ELECT 47MF 20% 10V	
C094	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C096	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C097	1-124-126-00	ELECT 47MF 20% 10V	
C098	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C100	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C101	1-124-126-00	ELECT 47MF 20% 10V	
C104	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C105	1-163-092-00	CERAMIC CHIP 9PF 0.25PF 50V	
C111	1-163-107-00	CERAMIC CHIP 39PF 5% 50V	
C113	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C114	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C118	1-163-089-00	CERAMIC CHIP 6PF 0.25PF 50V	
C119	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C130	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C131	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C132	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	

<CONNECTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN001	1-573-828-11	CONNECTOR, BOARD TO BOARD 14P	
CN002	1-573-828-11	CONNECTOR, BOARD TO BOARD 14P	

<DIODE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
D001	8-719-901-33	DIODE 1SS133	
D002	8-719-901-33	DIODE 1SS133	
D003	8-719-901-33	DIODE 1SS133	
D004	8-719-901-33	DIODE 1SS133	
D006	8-719-901-33	DIODE 1SS133	
D007	8-719-901-33	DIODE 1SS133	
D008	8-719-901-33	DIODE 1SS133	
D011	8-719-901-33	DIODE 1SS133	
D012	8-719-901-33	DIODE 1SS133	
D013	8-719-901-33	DIODE 1SS133	

<DELAY LINE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
DL001	1-415-728-31	DELAY LINE, 2H (ULTRASONIC)	
DL002	1-415-856-11	DELAY LINE, ULTRASONIC GLASS	

<IC>

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC001	8-759-046-76	IC LA7396	
IC002	8-759-821-51	IC LC8992	

<COIL>

REF.NO.	PART NO.	DESCRIPTION	REMARK
L001	1-410-521-11	INDUCTOR 100UH	
L002	1-408-411-00	INDUCTOR 15UH	
L003	1-408-411-00	INDUCTOR 15UH	
L005	1-408-422-00	INDUCTOR 120UH	
L006	1-408-416-00	INDUCTOR 39UH	
L008	1-408-403-00	INDUCTOR 3.3UH	
L009	1-408-421-00	INDUCTOR 100UH	
L010	1-408-421-00	INDUCTOR 100UH	
L011	1-410-515-11	INDUCTOR 33UH	
L012	1-410-517-11	INDUCTOR 47UH	
L013	1-410-437-11	INDUCTOR 330UH	
L014	1-410-439-11	INDUCTOR 470UH	
L015	1-408-421-00	INDUCTOR 100UH	

RP3

REF.NO.	PART NO.	DESCRIPTION	REMARK
R538	1-216-047-00	METAL GLAZE 820 5% 1/10W	
R539	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R545	1-216-044-00	METAL GLAZE 620 5% 1/10W	
R546	1-216-295-00	METAL GLAZE 0 5% 1/10W	

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